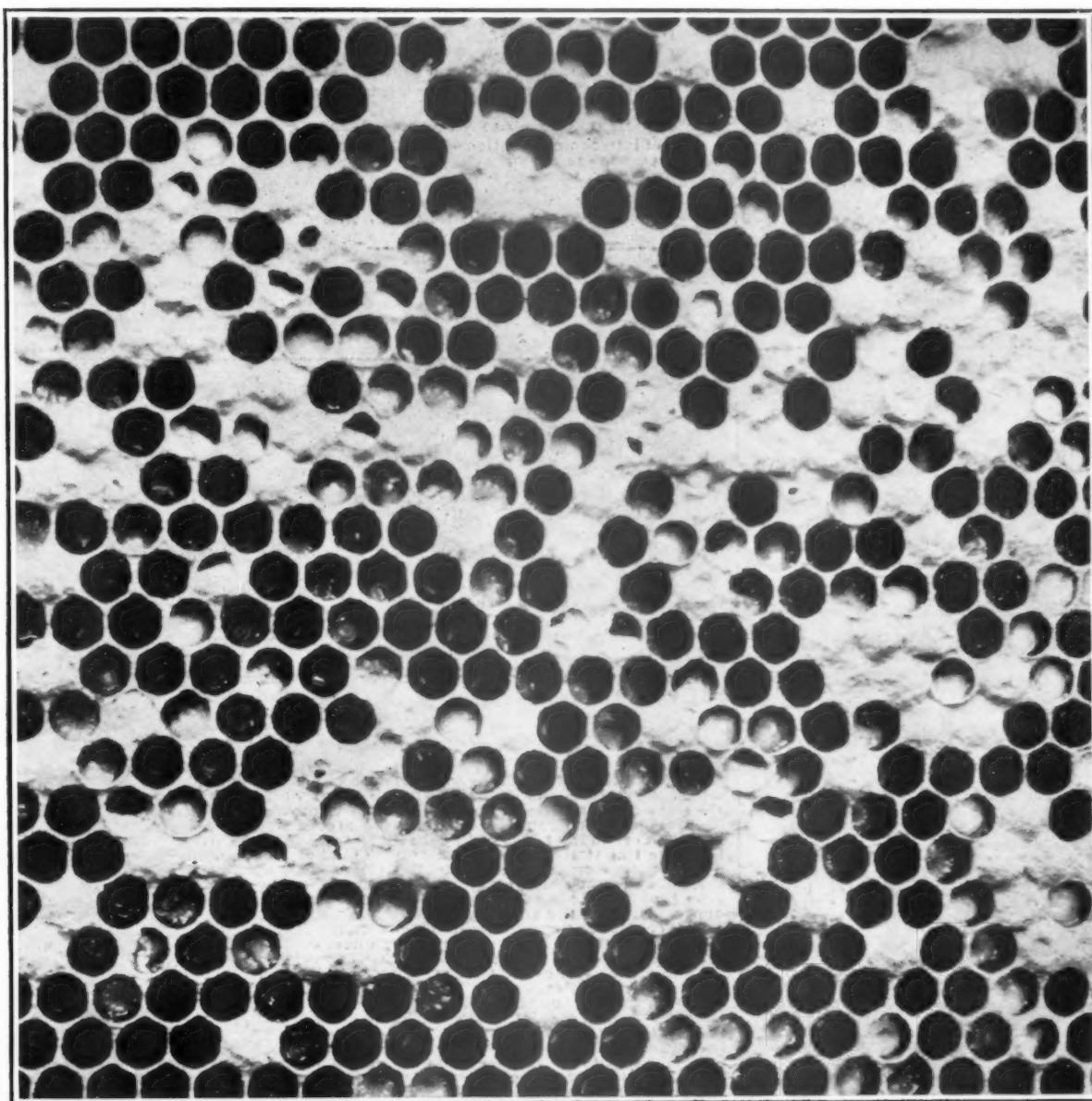


AMERICAN BEE JOURNAL

MARCH, 1916

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A Bad Case of European Foulbrood. This Disease is Especially Prevalent
During the Early Spring Months

LEGHORN BREEDERS!

THE LEGHORN JOURNAL
Appomattox, Virginia

APIARIES: Glen Cove, L. I.

LET US FIGURE WITH YOU

C.C.CLEMONS BEE-SUPPLY CO.
Dept. S., Kansas City, Mo.

EVERY FRUIT GROWER

BETTER FRUIT

and begin with the January issue our Special Spraying Annual. Subscription price \$1.00 per year in advance.

BETTER FRUIT PUBLISHING COMPANY
Hood River, Oregon

Get my prices before placing your orders.

R. H. SCHMIDT

Rt. 3, Sheboygan, Wis.

Sweet Clover Seed

We have a clean lot of the yellow biennial variety; made a growth from 4 to 7 feet on dry land. When cut for seed, 7 acres made 42 loads on a 10 foot hay-rack 9 feet wide. This variety makes a hay equal to any alfalfa. We can furnish clean seed for 20 cents per pound or \$12 per bushel f. o. b. Kalispell. Write for particulars.

J. D. KAUFMAN, Kalispell, Mont

GOLDEN AND LEATHER COLORED

We are now booking orders for April, May and June, 1916 deliveries at the following prices, viz.:

Prices of one and over	1	6	12	25
Virgins.....	\$.50	\$2.75	\$ 5.00	\$10.00
Untested.....	.85	4 50	8.00	16.00
Warranted.....	1.10	5 50	9.50	19.00
Tested.....	1.50	7 50	13.50	26.00
Breeders.....	3.00	and up to \$10.00 each.		

1-frame nuclei without queen.....	\$1.50
2-frame " " "	2.75
3-frame " " "	3.50

When queens are wanted with nuclei add queens at above prices quoted for queen-

	½ lb. package, wire cages, without queens.....	\$1.00
1	" " " " " "	1.50
2	" " " " " "	2.00

If queens are wanted, with pound packages add at prices quoted for queens.

On all orders amounting to \$50 and over we will allow 5 percent discount, and orders amounting to \$100 and over will allow 10 percent discount from above prices.

We guarantee safe delivery on queens, and safe delivery on bees that are not in transit over five days.

OUR REFERENCE—Any Mercantile Agency, A. I. Root Co., or American Bee Journal.

Get into communication with us at once and book your orders early to avoid disappointments in the spring.

THE PENN COMPANY, Penn, Lowndes County, Mississippi

Representatives of The A. I. Root Company, and Queen Specialists.

Preparedness Pays Big Dividends

So fortify and equip yourself with our 1916 Catalogue. Now Ready. Write today.

LEWIS' BEEWARE, DADANT'S FOUNDATION.

ROOT'S EXTRACTORS, SMOKERS, ETC.

Anything and everything you might need in Bee Supplies—and at right prices. Ship us your old Combs and Cappings for rendering. Write for terms

THE FRED W. MUTH CO.

204 Walnut St.

THE BUSY BEE MEN.

CINCINNATI, O

QUEENS OF QUALITY

The Editor of the *Beekeepers' Review* and his sons have 1100 colonies of bees that they work for extracted honey. With all those bees working with equal advantage, all having the same care and attention, they have an opportunity unexcelled to ascertain without a reasonable doubt colonies desirable as breeders from a honey-producers' standpoint. Likely never in the history of beekeeping was there a better opportunity to test out the honey getting strain of bees than this. Think of it, 1100 colonies with equal show, and a dozen of those colonies storing 250 to 275 pounds of surplus honey this last poor (with us) season, while the average of the entire 1100 was not more than 40 pounds per colony. We have sent two of our very best breeding queens (their colonies producing 275 pounds surplus each during the season of 1915) to John M. Davis and to Ben G. Davis, both of Spring Hill, Tenn., and they will breed queens for the *Review* during the season of 1916 from those four superior honey-gathering breeding queens. Those young queens will be mated with their thoroughbred drones. Our stock is of three-banded strain of Italians, also that of John M. Davis, while Ben G. Davis breeds that disease resisting strain of goldens that is becoming so popular.

By this time you are likely thinking that your strain of bees may be improved by the addition of this superior strain of *Review* queens, and how you can secure one or more of those superior honey-gathering queens as breeders. We will tell you: They will be sold to none except *Review* subscribers. If you are a paid-in-advance subscriber to the *Review* for 1916, we will mail you one of the daughters of those famous queens in June for a dollar. If not a subscriber to the *Review* for 1916, send \$1.75 for a year's subscription to the *Review* and one of those famous young queens. Those queens are well worth \$2.00 each compared to the price usually charged for ordinary queens, but we are not trying to make money out of this proposition, only we are anxious to have every subscriber of the American Bee Journal a subscriber of the *Review*, and we are taking this way to accomplish the object. A few of the very first orders for queens that we receive can be mailed in May, but the majority will not be mailed until June. Orders filled in rotation. Have your order booked early and avoid disappointment. Address, with remittance.

THE BEEKEEPERS' REVIEW, Northstar, Michigan

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THE BEEKEEPERS' REVIEW, Northstar, Michigan

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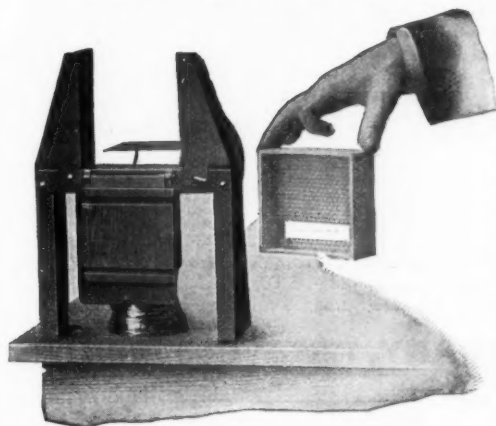
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American Bee Journal

WOODMAN'S SECTION FIXER

GOLD MEDAL



for the finest comb honey at the recent Michigan 50th anniversary convention, was won by Floyd Markham, of Ypsilanti Mich. He says:

"We have several kinds of machines for folding sections and putting in the starters, but since we got one of your Section Fixers, about two years ago, no other machines for the purpose are used in our shop. It pays to use bottom starters and your Section Fixer is the only machine that I know of that will do the job at any rate of speed and do it right."

DO YOU KNOW that with this machine you always handle large pieces of foundation which makes the putting in of bottom starters easy. Special circulars will tell you all about it. Price \$2.75 with lamp and one form block, shipping weight 5 pounds, postage extra.

A. G. WOODMAN Co., Grand Rapids, Michigan

The CANADIAN HORTICULTURIST AND BEEKEEPER

The only bee publication in Canada

It is the official organ of the Ontario Beekeepers' Association and has incorporated with it the former Canadian Bee Journal.

Beekeeping and Horticulture in its various branches are effectively combined to form a live, attractive, and practical monthly magazine.

Well illustrated and up-to-date. Subscription price postpaid.

Canada, \$1.00 a year. United States, \$1.25 a year. Foreign, \$1.50 a year.

Sample Copy sent free on request.

The Horticultural Publishing Co., Limited, Peterboro, Ont., Can.

THE CAMPBELL SYSTEM OF SOIL CULTURE

Everybody knows Campbell, the father of dry farming. Everybody knows that he started this great movement for Scientific Farming that is changing the desert into a garden. But everybody does not know that there is a great school, the

CAMPBELL CORRESPONDENCE SCHOOL OF SOIL CULTURE

where the Campbell System of Scientific Soil Tillage and Crop Growing are taught by mail, where a thorough knowledge of Scientific Agriculture can be secured without leaving home, at a very small expense. If you are a farmer or expect to be a farmer, send for the Campbell literature, Campbell's Scientific Farmer, the Campbell manuals, and a catalog of the Campbell Correspondence School. Sample copy and catalog free. Address,

CAMPBELL CORRESPONDENCE SCHOOL

325 Broadway - - Billings, Montana

Just What You Want

to bring repeat orders for your honey and at the same time increase consumption generally.

Paste this label on every section of comb or jar of extracted honey, to inform your customers of the value of your product. We are prepared to furnish gummed labels like the above at only 60c a thousand or \$1.00 for 2000 postpaid.

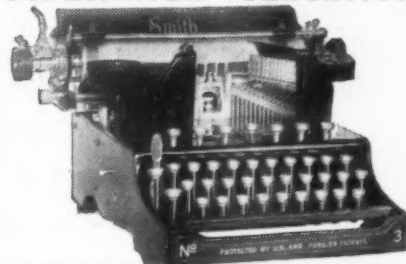
American Bee Journal, Hamilton, Illinois.

..... FOOD VALUE OF HONEY

According to a table of food values compiled by the State Food and Dairy Department of Iowa, 14 oz. of honey is of equal food value to the following:-

11.2 ounces cream cheese	worth at average prices	18 cents
20 eggs	- - -	30 cents
1 1/2 lbs. raw beefsteak	- - -	30 cents
1 lb. 14 oz. boneless codfish	- - -	40 cents
16 oranges	- - -	40 cents
1 lb. 1 oz. English walnuts	- - -	26 cents

TYPEWRITER SENSATION



GREATEST TYPEWRITER BARGAIN EVER OFFERED

Only \$2.00 a month until the bargain price of \$29.60 is paid and the machine is yours. **This startling offer has astounded the typewriter world.** Absolutely the greatest typewriter bargain ever offered. For a short time only I offer a limited number of these standard,

VISIBLE WRITING MODEL No. 3

typewriters at this exceptional price. **Perfect machines, not damaged or shop worn.** Complete outfit, cover, tools, instructions, etc. Machine of standard size but light weight and portable, keyboard of standard arrangement writing the full 84 characters, two color ribbon, tabulator, back spacer, writes on ruled lines; in fact every late style feature and modern operating convenience, at less than a third of the regular price, and each letter visible as printed and all previous writing completely visible at all times.

FREE TRIAL NO RISK

My brand new Model No. 3 offer for but \$29.60—and only \$2 per month.

I won't let you buy this typewriter before you see it. I want you to be absolutely convinced that this is the greatest typewriter bargain ever offered. If you have the slightest use for a typewriter you should accept this amazing offer. **You cannot equal this wonderful value anywhere.** When the typewriter arrives deposit with the express agent \$5.00 and take the machine for five days' trial. If you are convinced that it is the best typewriter you ever saw, keep it and send me \$2.00 a month until my bargain price is paid. If you don't want it, return to the express agent, receive your \$5.00 and he returns the machine to me. I will pay the return express charges. **This machine is guaranteed just as if you paid \$100.00 for it.**

ONLY 100 TYPEWRITERS At This Price

There is no time to lose. Fill in the coupon and mail it today—sure. The typewriter will be shipped promptly. There is no red tape—no solicitors—no collectors—no chattel mortgage. It is simply understood that I retain title to the machine until the full \$29.60 is paid. You cannot lose. **It is the greatest typewriter opportunity you will ever have.**

TEAR OUT—Mail Today

H. A. SMITH, 230—231 N. Fifth Ave., Chicago, Ill.

Ship me your Model No. 3, F.O.B. Chicago, as described in this advertisement. I will pay you the \$24.00 balance of the SPECIAL \$29.60 purchase price at the rate of \$2.00 a month. The title to remain in you until fully paid for. It is understood that I have five days in which to examine and try the typewriter. If I choose not to keep it I will carefully repack it and return it to the express agent. It is understood that you give the standard guarantee for one year.

NAME.....

ADDRESS.....

.....

BEES & QUEENS

Bred for Hohey Production

Untested Queens	- - -	75c
Select Untested	- - -	90c
Tested Queens	- - -	\$ 1.25
Select Tested	- - -	1.50
One Pound bees no queen	- - -	1.25
Two " " " "	- - -	2.35

Canadian prices, express prepaid to Toronto, \$3.25 queen included.

Chas. E. Hopper & Co.
HAYNEVILLE - - - ALA.

American Bee Journal

QUEENS FOR EARLY SPRING DELIVERY

We conduct a Bee and Queen rearing business in Florida during the winter, and at Canton, Ohio, during the summer. We now have a carload of selected Italian Bees in Florida for the purpose of supplying you with BEES and QUEENS for SPRING DELIVERY. WE GUARANTEE PURE MATING AND SATISFACTION IN EVERY RESPECT OR MONEY REFUNDED. We are breeding from Queens that gave a surplus of 300 pounds per colony in a 24-day honey flow. Will it not pay you to have this strain of bees in your yard? Prices as follows:

Island Bred Italian Queens. Shipments begin March 1st.

	1	6	12
Untested.....	\$1.50	\$7.50	\$12.00
Tested.....	2.00	10.50	18.00
Select Tested.....	3.00	15.00	24.00

Tested Breeding Queens, \$5.00 and \$10 each.

Prices on Bees by the pound f. o. b. shipping point.
Shipment begins May 10.

	1	6	12
1/2 lb.....	\$1.50	\$7.50	\$12.00
1 lb.....	2.00	10.50	18.00
2 lbs.....	3.00	15.00	27.50
3 lbs.....	4.00	21.00	36.00
5 lbs.....	5.50	27.50	50.00

(These prices are without Queens.)

Prices of Nuclei and Full Colonies without Queens. Shipping now.
1 Frame Nucleus, \$2.00; 2 Frame Nuclei, \$3.00; 3 Frame Nuclei, \$4.00; 5 Frame Nuclei, \$5.00; 8 frame Colony, \$8.50; 10 Frame Colony, \$10.
Address all communications to

THE J. E. MARCHANT BEE & HONEY COMPANY, - Canton, Ohio

THE BOOSTER

In its current and coming numbers will discuss the following policies which constitute its platform of principles.

First—Uniform quality of product, honestly graded and attractively displayed.
Second—A system of distribution that will protect the local producer, and prevent flooding one district and leaving others bare.

Third—A system of crop reports that will give accurate, detailed, and trustworthy information as to crop conditions in all sections promptly and intelligently.

Fourth—An efficient method of presenting facts and reasons for the wider use of honey in cooking, in the arts, manufactures, and on the table, to the people who would use it if they knew.

Fifth—An association of beekeepers who will carry these things forward to a successful consummation.

Are you interested in these policies? Wrap a quarter in paper and send it AT OUR RISK, and get these valuable numbers, and the rest of the good things for the coming year.

Address, **THE BOOSTER, Redkey, Indiana**

Archdekin's Fine Italian Queens

3 BANDED

Prolific—Hardy—Gentle—They are Persistent—Profitable Producers—None Better

Prices	Before July 1			After July 1		
	1	6	12	1	6	12
Untested.....	\$1.00	\$5.00	\$9.00	75¢	4.00	\$7.00
Tested.....	1.50	8.00	15.00	1.00	5.50	10.00
Sel. Tested...	2.00	10.00	18.00	1.50	8.00	15.00
2-fr. Nuclei...	2.50	14.00	26.00	2.25	12.00	22.00
1-lb. pkg. bees	1.50	13.00	25.00	1.25	7.00	13.00
2-lb. pkg. bees	2.50	14.00	28.00			

Above prices of nuclei do not include queen. Add price of queen wanted. Satisfaction and safe arrival guaranteed. Absolutely no disease in this country. Get your order in early and secure prompt delivery. Orders booked if half of amount accompanies order. Queens ready April 15th. Nuclei and packages May 1st.

J. F. ARCHDEKIN, Bordelonville, La.

ROOT DOVETAILED HIVES

are the STANDARD the WORLD OVER

Be prepared for a large honey-flow this year, as the outlook is unusually good!

PROMPT DELIVERY

is assured by

12 Factory Branches 18 Principal Agencies

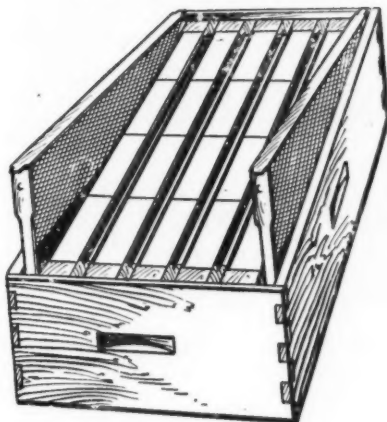
New York
Philadelphia
Chicago
St. Paul
San Francisco
Los Angeles

Send for 1916 Catalog

The A. I. Root Company
Medina, Ohio

Washington
Des Moines
Syracuse
Indianapolis
Zanesville, O.
Mechanic Falls, Me.

The New "F" Super and Its Advantages



The "F" Super is one of the new improvements which we have added to our line. It consists of a super holding 4x5x3-8 plain sections, and can be furnished in either eight or ten frame size. The eight-frame super holds 28 sections and the ten-frame 32 sections. This super is unlike many of the supers on the market, as it takes standard equipment, and offers the beekeeper, who, at any time might care to change over to extracted honey an exceptionally good item.

It can be used for extracted honey by purchasing 5 $\frac{3}{4}$ -inch frames which will fit the inside of the super or it can be used for comb honey. This saves the beekeeper from purchasing a whole new outfit should he ever care to change over to extracted honey and at the same time gives him an A-1 comb honey outfit for the same price as a comb-honey super can be purchased.

Any row of sections can be taken out and replaced with a shallow frame without making any other changes or adjustments. Some of our customers who have been substituting the shallow 5 $\frac{3}{4}$ -inch extracting frames on each side or in the middle are inclined to believe the bees enter the super much quicker.

Prices of the "F" super will be gladly furnished upon application.

Red Catalog, Postpaid

Dealers Everywhere

"Simplified Beekeeping," postpaid

W. T. Falconer Mfg. Co., Falconer, New York

Where the good bee-hives come from

YOUR BEES ARE WINTERING

And this is, therefore, the best time for you to take up an inventory and send in your orders for supplies

Not only will you thus receive your hives, frames, supers, etc., in ample time to nail them up and prepare them for the spring, but you will also save 3 percent on the cost of these.

Early-order discounts for March, 1 percent. It pays to order now.

ROOT'S GOODS, WEBER SERVICE—The ideal combination

C. H. W. Weber Company

2146 Central Avenue,

-

Cincinnati, Ohio

**Why Not Add a Lot of Pleasure, Strength
and Safety to Your Work by Using Budd's**

Wire Imbedders?

The Original Aluminum Imbedding Tools

Easy to operate; sanitary; will not rust, corrode or discolor the wax. A trial will convince the most skeptical man that this method is the next best thing to using electrical current for this work. To secure best results use DITTMER'S make of comb foundation and get NICE STRAIGHT COMBS.

— Ask the Man at —

Gus Dittmer Company

SOLE AGENTS

Augusta

-

-

Wisconsin

BARNES' Foot-Power Machinery



Read what J. I. Parent of Charlton, N. Y., says: "We cut with one of your Combined Machines last winter 50 chaff hives with 7-in. cap, 100 honey-racks, 500 frames, and a great deal of other work. This winter we have a double amount of hives, etc. to make with this saw. It will do all you say of it."

Catalog & price-list free

W. F. & JOHN BARNES
995 Ruby St., ROCKFORD, ILLINOIS.

TESTED QUEENS BY RETURN MAIL \$1.00 each

These Queens are not culls or inferior in any way because they are cheap. They were reared last September and October, and wintered in 4-frame nuclei, expressly for our early trade in tested queens. We guarantee every queen to be good as the best. No disease in our apiary. Untested queens early in April. \$1.00 for single queen; \$9.00 per dozen.

J. W. K. SHAW & COMPANY
Loreauville, Louisiana

THE WHOLE COUNTRY PRAISES

The New Lewis 1916 Beeware Catalog

From California—"Much pleased with your 1916 catalog. Other catalogs are all right for the man who knows the goods and knows just what he wants. Your cuts, description and arrangements are so good they will give delight to the amateur or the one who wants to know in detail of new things."

From Maryland—"We are in receipt of your 1916 catalog and wish to compliment you on the same."

From Texas—"Have heard quite a good many expressions from beekeepers who have received a copy of the 1916 Lewis Catalog, commenting on the beauty of this catalog and upon its improvement over any catalog that they have ever seen."

From Wisconsin—"Received your 1916 catalog. It is a dandy."

From New York State—"Congratulate you on its neat appearance. Each season it is a little better than the preceding one."

Send Right Now for a New Lewis Catalog

Here are only a few of the distinctive features contained in it

Our **NEW METAL BOUND DIVISION BOARD** in the full depth size, is to be found illustrated, described and listed.

A very good tool in the shape of a **KNIFE FOR SCRAPING AND CLEANING FILLED SECTIONS** is illustrated, described and listed.

A **WOVEN WOOD AND WIRE CHEST**, which is a low cost article with many uses, is illustrated and described.

One page is given over to the **RAUCHFUSS FOUNDATION CUTTING BOX**, a practical little outfit for the beekeeper.

Two other articles, a **SECTION HOLDER NAILING FORM** and **FRAME WEDGE DRIVER** are offered.

Two whole pages of **INSTRUCTIONS TO BEEKEEPERS** by **C. P. DADANT**, will be found interesting to the old beekeepers as well as the new.

One page devoted to the **PROSPECTIVE BEEKEEPER** is very interesting, and many new thoughts are presented.

Published only by G. B. Lewis Company
Manufacturers of Lewis Beeware, Watertown, Wisconsin
Get Your Copy Now



Vol. LVI.—No. 3

HAMILTON, ILL., MARCH, 1916

MONTHLY, \$1.00 A YEAR

A National Publicity Campaign for Honey

Suggestions of an Advertising Specialist—By R. C. Gano

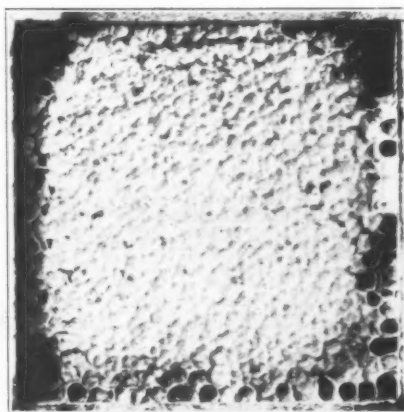
THERE has been much talk about national publicity for honey," said M. G. Dadant of the American Bee Journal in a letter to an advertising firm, "and if we can place facts before our readers that will enable them to unite on a feasible plan we will be glad indeed."

That letter landed on the desk of an advertising man whose job it is to buy advertising space in various publications for the clients of the firm. He must have happened to remember that another fellow in the company had written some articles for farm papers about the Sunkist and Sun-Maid campaigns, so he marked the letter to me.

Knowing what remarkable benefits the orange growers have secured through organization and cooperative advertising, I was mighty interested to hear that the beekeepers have the same bee in their bonnets. I know little about the honey industry except what Mr. Dadant's letters tell me, but they tell me enough so that I see plainly the beekeepers can profit from hearing the inside facts about what the California orange and raisin growers are doing. For instance, Mr. Dadant informs me that beekeepers are widely scattered and have no general organization, but only a few local organizations. The California orange growers present the opposite situation. They have what has been called by good authority the finest cooperative marketing organization in the world. It has not only the local associations, but these are grouped under district exchanges, and the district exchanges are members of the central exchange the official title of which is the California Fruit Growers' Exchange. This exchange thus handles the citrus crops of over 8000 growers, which means that it markets annually nearly two-thirds of California's entire citrus crop. It has so systematized the selling end of the industry during its 20 years of existence that in 1911-12, an average year, its total cost of operation was 2½ percent on gross sales. This is the lowest selling cost known in the food producing world. It is estimated that farmers pay 7 to 20

percent on gross sales as marketing cost. And through its study of the market and its active influence on the market, it has always succeeded in securing for its members good prices.

Now there is no use whatever in your reading how the orange growers' organization achieves such fine results if it would be impossible in the first place for beekeepers to perfect a general organization similar to that of the orange growers. If they can get the organization there is no reasonable doubt that they can accomplish in their own field what their California cousins have accomplished in the citrus field. So, though I don't know anything about



the distribution of beekeepers, I am going to try to show why it is possible to effect the organization, no matter what their distribution over the face of the country.

The question then is: Can beekeepers of the United States and Cuba be brought into a single business organization similar to the California Fruit Growers' Exchange?

I think they can. The fact that the orange growers are concentrated in the southern half of a single State is an advantage and enables their exchange to do some things which it would be impossible for the more scat-

tered honey organization to do. But it will be seen later that the three most important functions of the California Fruit Growers' Exchange are standardization of output, cooperative advertising and the maintenance of a central office which keeps thoroughly posted on market conditions. Its other functions are merely incidental. These three are primary, and the honey organization would be on equal terms with the citrus exchange so far as these three primary functions are concerned.

The California Fruit Growers' Exchange is composed of about 150 local associations, some of which have as many as 200 members. Each local association has a salaried manager, and an unsalaried board of directors, and owns a packing house. It superintends the picking, grading, packing and branding of the fruit, and ships direct to markets acting on advice from the district exchange.

The local associations are grouped under 19 district exchanges. These order cars and have them placed for loading, secure market data direct from markets and, through central exchange, are payees for all shipments by their local associations. The agent at market sends the money to the district exchange which deducts operating expenses and forwards remainder to the local association for pro rata apportionment to members.

The Central Exchange is headed by a salaried general manager, and has 19 directors, one for each district. It has its own legal, traffic, advertising, supply, and insurance departments, and is operated at cost. The Sunkist trademark belongs to this Central Exchange.

A BEEKEEPERS' ORGANIZATION.

Just as the local associations of citrus growers represent natural geographical subdivisions or groups, so the beekeepers of the United States must inevitably be divided into natural geographical groups. The beekeepers of Illinois might represent a convenient group for one local association, or those of southern Illinois and Indiana

American Bee Journal

might represent a more convenient single group, while northern Illinois would group in with Wisconsin. Or possibly such groups would be too large, and these three States could form into say eight local associations each having from 50 to 200 members. Assuming that 60 local associations should be formed, including most of the progressive beekeepers of the United States, these might be divided into ten groups of six each, one of the six being made district headquarters, and each ten district exchanges could send national directors to a Central Exchange.

Get-together meetings might be much more rare than in the case of the orange growers, due to greater expense, but they could be held periodically, and form letters could be used in lieu of them for ordinary purposes.

To get united action in this matter is the greatest problem in connection with the entire project, and if the American Bee Journal succeeds through this article or a series of articles, in securing national interest which will result in a national organization it will have done probably the biggest thing that has ever been done in the industry. Personally, I think organization is bound to come, sooner or later, and it is certain that the beekeeper who takes the lead now in his community and works for organization will have a strong chance for preferment when national organization finally comes. It may come quickly or it may require years. Everything depends upon how many beekeepers take hold, read the signs aright, pitch in and work for it. That there are already some local organizations is promising. It shows that local organization may be expected to pay its own way even before the national organization is effected. And it may be stated as a truism that association of men engaged in the same line of business always pays, and pays better and better as the organization becomes wider in scope. It pays even if the organization is merely for social purposes. But it pays best when intelligent plans are formulated to make it pay.

It has been implied that such a national organization, when finally secured, could reduce selling costs to a minimum, and could secure for its members the best market prices. At present I understand that many beekeepers depend upon cutting prices to sell their product, but that doesn't mean that they wouldn't prefer the best market price if they could get it. Local associations would be only the first step towards national organizations, but it would be an effective step towards maintaining prices, as has been proved by the experience of the Colorado Honey Producers' Association. Their efforts are only partially successful, however, as the individual beekeeper who cuts prices is right at their shoulder. A national association would not eliminate competition. There would always be those who would stay on the outside and compete. Nor would its desire be to eliminate competition, for it would then begin to smack too strongly of monopoly. Its sole aim would be a cooperative effort to increase the public demand for honey by constructive advertising

and to watch the markets with an eagle eye so as to know where supply is short and demand for honey active. Honey rushed to such points can always secure a good price.

Incidentally the advertising campaign would try to make the public ask, not for any old kind of honey but for the special brand put out by the national association, a brand which would be protected and which only members could use.

Now I am going to take it for granted that the beekeepers, however widely scattered they may be, all came originally from Missouri. I am going to try to show them briefly but clearly

today. Though at that time our national population was over 65,000,000, nearly two-thirds of what it is today, the California citrus growers found it difficult to sell at a fair profit an orange crop which was *one-ninth* the size of the crop they sell at a good profit today. These figures are absolutely authentic. The California citrus production in 1895 was less than 5000 carloads, whereas the normal crop today is 45,000 carloads. The orange crop has increased 900 percent, while the population has increased 50 percent, and this indicates what is an actual fact, namely, that the people of the United States eat today seven or eight times as many oranges in a year as they did in 1895. What has changed their habits, in this regard? Nothing more nor less than advertising.

In 1895 they not only sold fewer oranges per capita, but they received a smaller profit per box because the speculators got the producers to bidding against each other. The speculators knew the market. The producers didn't. So they had to take what they could get from the speculators.

In 1895 orange growers were every year afraid of over-production.


And lastly, in 1895 the consumer, when he bought a dozen oranges didn't know what he was getting until he had cut them open. He had no guarantee that they were juicy and sweet, and quite often some of them were not.

About that time the California Fruit Growers' Exchange was formed, because the growers realized that something would have to be done to develop a future for their business. To say that it began working miracles right from the start would hardly be an exaggeration. It studied the science of selling, and soon had the marketing end of the industry on a business basis. It began putting agents in the various market centers, and when a carload was ready for shipment it knew from its agents where to send it to get a good price. Fear of over-production soon became a thing of the past.

During the first five years of the Exchange's operation the citrus crop increased 255 percent, from 1900 to 1905 it increased 71.7 percent, from 1905 to 1910 it increased 10.9 percent, and from 1910 to 1914 it increased 48.5 percent. Two hundred million dollars is now invested in this industry in California.

It may be said that the putting out of agents was a form of advertising. At least it was personal salesmanship. Representing the citrus growers as they did, these agents did active promotion work for oranges in their territories, and it was their work in conjunction with general promotion work by the Exchange that marketed two crates where one had been marketed before, in the first few years.

In 1902 Pres. Story, of the Exchange, began agitating the question of newspaper advertising as a practical method of increasing consumption of exchange oranges and lemons. He was finally successful with his associates, and arrivals of carloads of California oranges at various markets began to be announced in the local newspapers. These announcements grew more frequent as they were seen to influence consumption, until finally the advertising cam-



How to Use Lemons

Do you know these facts about lemons?

The culinary uses of lemons are not the only ways in which lemons aid housekeeping. Besides being the basis of hundreds of charming desserts and making scores of other foods more delicious and digestible, lemons serve as follows:

As a Cleanser: Nothing will clean soiled hands more quickly than a piece of Sunkist lemon. Rub it over the hands and rinse off with water. It will remove even ink or fruit stains from the skin.

As a Hair Wash: Dip the hair in a basin of warm water. Rub the juice of a Sunkist lemon into the scalp. Rinse thoroughly, and dry with a soft towel. The lemon juice removes dirt and grease, leaving the hair soft and glossy.

As a Stomacher for the Stomach: Squeeze the juice of half a Sunkist lemon into a glass of water and drink before breakfast for a few mornings.

To Make Tough Meats Tender: Most cuts of meat are immensely improved in flavor and tenderness if boiled in water in which a teaspoonful of Sunkist lemon juice is placed.

To Make Washing of White Clothes Easier: Sunkist lemon juice softens water and renders washing less difficult. It helps to remove dirt and grease, whitening and freshening white clothes. Do not use in washing colored clothes.

There are scores and scores of profitable ways to use lemons and their juice. The above are modern short cuts which hundreds of thousands of housewives now use to make the day's work easier.

Try them. Then ask about other uses in which lemons play the labor-saving role.

California Sunkist

Practically Seedless Lemons

Is ordering lemons from your dealer be sure to say "Sunkist". For these are the world's finest lemons—practically seedless, juicy and full-flavored.

Write for free book "Sunkist Salads and Desserts," containing many attractive orange and lemon recipes.

Sunkist oranges and lemons are sold by first-class dealers everywhere at the same prices asked for ordinary brands.

CALIFORNIA FRUIT GROWERS EXCHANGE
 Eastern Headquarters, Dept. 000, 174 N. Clark Street, Chicago

KIND OF ADVERTISING USED TO ADVERTISE LEMONS IN MAGAZINES OF NATIONAL CIRCULATION

how the California citrus fruit growers, through cooperation, have put their marketing operations on an efficient business basis and have secured good prices. Then, when I get through with that, I am going to mention one or two other selling campaigns which may throw a little light on the honey-producers' problem.

EXPERIENCE OF ORANGE GROWERS.

Back in 1895 the orange situation was much what the honey situation is

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paign on "Sunkist" fruits had grown to big proportions.

In June, 1914, the distribution of Sunkist oranges and lemons having become quite thorough, the advertising campaign was expanded and entered a few magazines of general circulation in addition to the newspapers. An announcement to dealers after the campaign was in full swing stated that "These oranges are being advertised in 28,000,000 homes through the most widely read magazines and in 500 newspapers." In 1915 the campaign was again enlarged, a total of 54 advertisements being run in such magazines as Saturday Evening Post, Ladies' Home Journal, Woman's World, Collier's, Mother's Magazine, People's Home Journal, People's Popular Monthly, Ladies' World, Christian Herald, Literary Digest, Youth's Companion, Good Housekeeping, and National Sunday Magazine. It was estimated that the circulation of these advertisements, lumped, was over 52,000,000. As regards newspapers in 1915, the total circulation of the papers used equalled 15,000,000, and a series of 17 advertisements was run in each paper.

This year's campaign cost the Exchange \$375,000 as against \$225,000 in 1914. In 1915 the orange and lemon campaigns were conducted separately for the first time, \$230,000 being devoted to orange advertisements, \$100,000 to lemon advertisements, and the remainder being used for recipe booklets, announcements to jobbers and retailers, and premiums.

The silverware premiums given in exchange for Sunkist wrappers have played an interesting part in the campaign. By giving a value to the tissue paper wrapper, the Exchange gave consumers an extra inducement to ask for Sunkist fruits by name.

CHARACTER OF APPEAL.

The advertising has been designed to appeal to both emotions and intellects. That is, it has tried to make the public's mouth water for oranges by picturing them so that in the illustrations they look good enough to eat, and it has given reasons why Sunkist should be specified in buying oranges, instead of accepting just any brand, or no brand at all. For example, it is always emphasized that only the best oranges are packed in Sunkist wrappers, that they are picked ripe, this being possible because of refrigeration facilities and general speed in shipping, that the grading is done by experts, who know when an orange is sweet and juicy by looking at it, and lastly that the wrappers have a cash value. The advertisements offer a recipe booklet giving every imaginable way of serving oranges. As the campaign is designed to increase demand on retailers the booklet offer alone allows the Exchange to directly gauge the pulling power of the advertisements. Consumers are not told that they can get the booklets from dealers, but that they must write to the Exchange for them.

Lemons are advertised in a very similar manner. The Exchange also markets a second grade of fruit under the trade name of Red Ball Oranges and Lemons.

How well the Exchange knows its



Choose Seedless Sunkist Oranges

Seedless oranges slice better, water-thin and unmarred. And these seedless navel oranges are the tenderest also.

Famous chefs prefer Sunkist because this firm and tender fruit makes the best flavored and best looking dishes too.

Millions of housewives are now finding out these facts. You will find them out once you try Sunkist.

No other tender Sunkist seedless navel oranges for all culinary uses in your home.

See how good these dishes are when made with seedless Sunkist from the sunny California groves.

There are scores of luscious orange dishes described in our free recipe book. They will lend variety to your meals and are very quickly and easily prepared. No woman ever wants to be without this book once she knows how healthful oranges are, and knows the charming ways to use this fruit.

Send now for the book. A postcard gets it.

CALIFORNIA FRUIT GROWERS' EXCHANGE
CO-OPERATIVE BUY-PROFIT
Eastern Headquarters Dept. 120 N. Clark St. Chicago
Sunkist oranges and lemons are sold by all first-class dealers everywhere
See Sunkist tissue wrappers for beautiful illustrations

SAMPLE ADVERTISEMENT USED BY THE ORANGE GROWERS

market is indicated by the growers' experience in 1912-13, when unexpected cold weather reduced a crop which had promised to set a new record of over 13,000,000 boxes to a scant 5,000,000 boxes, less than half of the number of boxes shipped in 1910-11, and only 53 percent of the previous year's shipments. But the Exchange knew that the shortage would result in higher prices provided the oranges were placed right. Results were that while shipments equalled 53 percent of the previous year, cash returns equalled 79 percent.

I think it is obvious from the foregoing that the primary functions of the California Fruit Growers' Exchange are:

1. To insure that only first quality oranges are packed under the Sunkist brand.
2. To create and foster a growing consumer demand for oranges and lemons through advertising.
3. To keep in accurate touch with conditions in the orange and lemon market.

Incidentally the Exchange does many other things that it happens to be able to do on a wholesale scale for its



DR. BONNEY'S SIGN BESIDE THE RAILROAD AND WAGONROAD

members. For instance, it operates a supply company which is a stock company whose stock is held by the local associations and pays 6 percent dividends. This company has effected large savings in the purchasing of lumber, nails, etc., for crating.

In the field of fruit production there are other instances of cooperation than that furnished by the California Fruit Growers' Exchange. The California Associated Raisin Company is not strictly an association but is a company organized along cooperative lines, for profit. It is beginning to do in the raisin field exactly what the Fruit Growers' Exchange has been doing. The Florida Citrus Exchange furnishes another example of successful cooperative advertising by citrus growers. The walnut growers of California are beginning to do cooperative advertising. The general experience of all these can add very little to what has been said, however, though details in their operation might repay study later.

BEEKEEPERS COULD DO LIKEWISE.

In conclusion I want to say that I think a national association of beekeepers might perform in the honey field all of the three primary functions performed by the California Fruit Growers' Exchange as listed above. Let us see.

1. It could certainly originate a brand new name and protect it, and it could see that all of the first quality honey produced by its members be packed under that name, and that no second quality honey be admitted. For second quality honey it could adopt a different brand name.

2. It could begin advertising in a small way, if it desired, picking out certain localities and using newspaper copy in an experimental way. That consumption of honey can be increased by advertising I believe has already been demonstrated by a private company which markets a brand called "Airline Honey." The campaign would naturally expand to national dimensions.

3. It would keep in accurate touch with conditions in the honey market by appointing agents at the various market centers, and in other approved ways.

That such a program would operate to secure rapid growth in the industry and a ready market for the increase I personally have no doubts. The orange growers today are figuring on no less an undertaking than the doubling of orange shipments from California in the next five years, though population increases only about 2 percent each year. They have only advertising to depend on to take care of this increase, yet they are getting confidently to work.

Honey is a commodity that the public knows little or nothing about. Only the other day my wife asked me how honey happened to come in little square frames, and I didn't know whether these frames were put into the hives, or whether the honey was put into them after it was removed. Incidentally we had honey on our table that evening for the first time since our marriage, unless I am mistaken.

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C. P. Dadant, Editor
Dr. C. C. Miller, Associate Editor,
Frank C. Pellett, Staff Correspondent.

IMPORTANT NOTICE.

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THE WRAPPER-LABEL DATE indicates the end of the month to which subscription is paid. For instance, "dec16" on your label shows that it is paid to the end of December, 1916.

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THE EDITOR'S VIEWPOINT

Announcement

We are glad to inform our readers that our editorial staff is now increased by the addition of Mr. Frank C. Pellett, who will act in the capacity of Staff Correspondent.

He will need no introduction to the readers of the American Bee Journal of the past few years, for he has been a regular contributor and his articles are appreciated. Mr. Pellett, who is now State Inspector of apiaries of Iowa, a born naturalist and author of the new book, "Productive Beekeeping," has been furnishing us with a series of articles on "Honey-Producing Flora in the United States." In his new capacity, he will not only continue this series but will also supply additional writings and ideas on bees, both popular and technical. He will also act on the Advisory Board of the Bee Journal.

Mr. Pellett spent a few weeks with us, but his address remains, as before, Atlantic, Iowa.

Honey Day

We note that Honey Day was observed throughout South Africa two years ago on Aug. 20. There has been some agitation for a National honey day in this country, but as yet not enough beekeepers have become interested to make it a success. Poultry Day has also been observed in Africa with much apparent interest.

To Destroy Ants

We often hear complaints, from beekeepers in warm climates, that the ants are destructive to the bees. In parts of Africa they are said to drive strong colonies from the hives and to remove the honey and brood. Fortunately the species of ants which are common in most parts of the United States do little real injury to the bees.

The South African Beekeepers' Journal recommends the use of fat poisoned with arsenic and placed in tin cans with small holes to permit the ants to reach it while keeping everything else away. This remedy is said to be very effective, but since arsenic is a very dangerous poison, great care should be used with the poisoned bait.

Texas Field Meetings

The senior editor, C. P. Dadant, expects to attend the series of Texas field meetings which are planned early this month. March in the North is a cold and disagreeable month with most of the bees still in winter quarters, but in Texas the honey flow is usually beginning. A number of county meetings are to be held during the coming two weeks, and we regret that we are unable to announce the dates and locations of these meetings. Mrs. Dadant expects to accompany her husband on this trip and will enjoy meeting the women folks.

Locusts and Honey

We already knew that when John the Baptist lived in the desert, he subsisted on "locusts and wild honey," Matthew III, 1-4, but it remained for Mr. John D. Whiting to tell us about locusts themselves eating bees and honey.

This writer, in the National Geographic Magazine, for December, 1915, gives a very interesting account of the modern "Jerusalem Locust Plague," in 1915, with splendid half-tones and vivid descriptions of the manner in which these insects invaded Judea, obscuring the sun and making a noise like "the distant rumble of waves." All the vegetation was destroyed within a very few hours and they even ate each other. Then—

"Nor was the craving for flesh re-

stricted to locusts themselves, for they entered into beehives, and are reported to have spoiled them by eating both bees and honey. They likewise were seen eating ants."

We believe this one article is worth a year's subscription to the National Geographic Magazine. And we are not paid for saying it either.

Our New England Number

The April issue of the American Bee Journal will be a special New England number. We have in mind to give attention to a particular section, in this way, from time to time, and thus give our readers more information about the advantages of the various States. We believe that even our Texas and California readers will find this number of interest, though their local conditions are very different. Among the special contributions which we are promised for our New England number are the following:

"New England's Contribution to the Advancement of the Industry"—Dr. Burton N. Gates.

"Honey Flora of New England"—John H. Lovell.

"New England Beemen I Have Known"—J. E. Crane.

"New England Beekeepers' Societies"—Miss Josephine Morse.

"New England Honey and Honey Markets"—Allen Latham.

"Honey at New England Fairs"—A. W. Yates.

Minnesota Apiary Inspection

The printed report of the Apiary Inspector of Minnesota, Chas. D. Blaker, is on our desk. It contains a statement of the Census of Beekeeping in Minnesota, a report of the number of apiaries visited, colonies treated, etc., and lastly a description with cuts of the symptoms and cure of the brood diseases.

In this report, Mr. Blaker quotes an argument, by Inspector Frank C. Pellett, of Iowa, in the Iowa report, which shows very forcibly the value of beekeeping when compared to poultry raising, and is worth reproducing and remembering:

"Quite frequently one can hear the total production of poultry and bees compared, to the disparagement of the beekeeping industry. Such persons forget that 75 percent of the total figures represented by the product of poultry have already been counted as corn, wheat or other grain which had been fed to the poultry to produce the product, while with the honey produced we have a net resource. The bees gather the nectar from which the honey is produced direct from the

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flowers, and if it were not so used, it would be lost."

The Minnesota report may be had free by addressing Chas. D. Blaker, Inspector, 4420 Grimes Ave., Minneapolis, Minn.

The Airline Advertising Campaign

By far the biggest thing ever attempted in the way of National publicity for honey, is the general advertising campaign of the A. I. Root Company, for the Airline honey. Advertisements of this brand of honey have appeared in the better class of magazines of national circulation for the past two years as well as in most of the daily papers of the large cities. There can be no question but that this campaign has been of great value in steadying the market at a time when it was very much unsettled. A notable result of this general advertising has been the appearance of honey in many cafes, dining cars and other places where it had not previously been offered. While, of course, a special demand has been created for "Airline Honey," many new customers have appeared for honey in general, your honey and ours. No concern is big enough to absorb all the benefit from its own advertising, and only a large corporation is able to conduct a nationwide advertising campaign.

The Root Company has spent \$50,000 in three years for advertising purposes, and this year has handled nearly a quarter of a million dollars worth of honey. While it is to be presumed that they have made a profit in the sale of such a large amount, they have made a market for many carloads of honey from sections where it was not moving freely previously.

Mistakes

During the winter months the daily mail is very heavy and mistakes are sometimes made in crediting subscribers for remittances. We are anxious to correct any error and trust our readers will notify us when mistakes occur.

Premiums at Fairs

One reason why better premiums are not offered for hive products at agricultural fairs is that beekeepers do not make their showing at the proper time. If the matter is brought before the fair officials at the time when they are preparing their premium lists it is often possible to get much better premiums. Two years ago the Iowa Beekeepers' Association addressed a letter to the secretary of every county fair in the

State and enclosed a suitable premium list. As a result, in several counties where little attention had been paid to hive products, there is now offered a very creditably amount for premiums on honey and wax. Now is the time to get in touch with the officials of State and county fairs if anything is to be accomplished for the coming season. Even now many of the fairs will have their premium lists fully made up for this year. Wake up and call upon the fair officials if you want to help make the apiary displays worth while.

Overcome by Gas

We learn from the Ames, Iowa, Times, that Prof. Bartholomew, the well-known instructor in beekeeping and president of the Iowa Beekeepers' Association, and his family were accidentally overcome by gas produced by their heating furnace, to such an extent that Mrs. Bartholomew, the three children and a nurse were rendered unconscious. Had not Prof. Bartholomew himself been able to summon a physician, it is doubtful if the family would have survived.

How Long Have You Read this Paper?

We have a very interesting letter from Mr. George Hodges, of Belmont, N. Y. He writes that he has been a subscriber to the American Bee Journal for 30 years. This leads us to enquire how many on our list have read the Journal for a longer period. We would be glad to know how many have been subscribers for 30 years or more.

Sight in Bees

It has been written that "experiments indicate that insects are very short-sighted, none being able to see distinctly for more than 60 centimeters (24 inches) and bees much less than that."

Bees, at their first exit from the hive, fly around in circles to get fully acquainted with the spot where their home is. Whether it is a hollow tree in the woods or a movable-frame hive, they come back to it with the greatest precision, after having traveled great distances, through woods, fields or brush. No sense except vision directs them in this. It is true that at certain short distances they seem unable to readily distinguish objects. Perhaps, having two different sets of eyes, the compound eyes and the ocelli, they are somewhat in the position of a man who needs spectacles for short distance sight; there is a point at which his sight is inefficient, with or without

spectacles.

If we disturb a hive of bees on a cool day, when the bees are not active, but still able to fly at us, they will notice the intruder, after he runs away, at several rods. But if they have had no cause for anger he may think himself unseen by them because they pay no attention to him.

The editor of *Gleanings in Bee Culture*, in his December number, holds that bees fly longer distances in some localities, because they may be able to see fields of blossoms across a valley two or three miles away. Although this may be a little excessive, it seems to me much more plausible than a short vision. Both, however, may be true if we accept the possibility of long vision from the compound eyes and short vision from the ocelli.

It is accepted by many entomologists that bees have short vision. But to explain their return home from a distance there is no other way than a very good distant vision. Some men, Gaston Bonnier of the Paris Institute among them, claim the existence of an additional organ which they call "organ of direction." This is a mere surmise. Bees find their way home only from places where they have gone before. If we carry a hive of bees outside of the range of their harvest, none find their way back to the old spot. This we have tested hundreds of times.

I have seen a bee come to a very short single blossom of white clover, at my feet, when there was not another blossom within 40 feet. That flower was in a lawn, among the blades of blue grass, and the bee either saw it or smelt it. I believe it did both.

The Sense Organs of the Mouth Parts of the Honeybee

We are again called upon to notice a very scientific and thorough study of bee anatomy, by Dr. McIndoo, the same man who has already given us a study of the olfactory organs. This work, as minute in its details and as scientific in its descriptions and its terms as the former work, is not intended for the average reader.

Dr. McIndoo says that from the definitions given "it is evident that the senses of smell and taste in vertebrates cannot be sharply separated, and the present paper will show that these two senses in the honeybee cannot be separated at all. In the honeybee it will be shown that the sense of taste is only one phase of the olfactory sense."

Experiments were made in feeding foods containing repellents, such as carbolic acid, oil of peppermint, whis-

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key, etc., and judging from these experiments "we are certainly safe in saying that the bees avoided the foods containing repellents on account of the odors emitted from these substances."

The results obtained demonstrate honey best of all foods, and that they are able to distinguish marked differences between various kinds of honeys. Substitutes for honey as food may be better in a few instances, but these investigations indicate that no substitute can be had which will be liked by bees as well as the best pure honey.

In order that bees may show preferences between foods emitting weak odors, it is first necessary for them to eat a little of the foods, which would seem to indicate that bees may have a true sense of taste. Yet Dr. McIndoo prefers to consider it merely as a phase of the olfactory sense, and he calls this faculty olfactory-gustatory. No organs have been found that are anatomically adapted for receiving gustatory stimuli, and it is Dr. McIndoo's opinion that bees do not have a sense of taste.

It would be nothing strange to hear a practical beekeeper say, "It doesn't seem reasonable to think bees don't taste. We know there are many things that have a distinct taste, and yet have no smell; sugar, for instance. Quinine has no color, yet no one would call it tasteless. Now if bees have no taste how can they decide about things that have no smell? How can they tell sugar from quinine? Even Dr. McIndoo's own statement contradicts his opinion. He says that "when bees are given foods with weak odors they first eat a little to decide whether they like the food or not." What is that but tasting?

Dr. McIndoo's reply to this is interesting. He says:

"As Parker has already said for vertebrates, and as we well know for ourselves, it is almost impossible to determine whether we taste or smell certain substances when we eat them. To us sometimes a food, before being eaten, emits only a faint odor or no odor at all; but when we eat it, we perceive a pronounced odor. In such a case the odorous particles are not given off until the food is taken into the mouth and mixed with saliva.

"The same principle is certainly applicable when bees eat candies which contain undesirable substances emitting extremely weak odors. As quickly as the saliva has dissolved the candy and has had time to effect a chemical or physical change, the odorous particles are given off, and since the olfactory pores on the mouth-parts are nearest the food, they are the first ones to receive the odorous particles. For this

reason the so-called gustatory sense in insects is only a phase of the olfactory sense."

Dr. McIndoo has slightly modified his opinions concerning the olfactory organs of the bee. In his paper on "The Olfactory Sense of the Honey-bee," in the *Journal of Experimental Zoology*, kindly sent to us by him and mentioned in the *American Bee Journal* in June, 1914, Dr. McIndoo doubted the existence of olfactory organs in the antennæ, where practically all scientists before him located them. In that number of the *American Bee Journal*, page 199, 1914, he wrote: "It seems that the antennæ have nothing to do with the sense of smell." We were loath to accept this view, as were most of our practical beekeepers and as was Dr. Bruennich, of Zug, who wrote, in a review of the McIndoo study, page 382, November, 1914, the following statement as his own conclusion:

"The sense for fine odors, for discovering honey sources, perceiving foreign individuals, sexual odors, etc., is situated in the antennæ."

In the present exhaustive work on the sense organs of the mouth, Dr. McIndoo says, page 28: "Olfactory pores were found on the mandibles, maxillæ, labial palpi, tongue, side of head, in the buccal cavity, on the cervical plate and on the bases of the scapes of the antennæ." (Italics ours.) This makes us feel a great deal better on the subject, for we have been unable to fully accept the statements advanced locating the organs of smell mainly on the legs, on the wings and on the sting. However scientific and careful a study may be, there are so many minute organs to consider, that no positive deduction may be made, unless it apparently fully agrees with the testimonials of practice. The practical beekeeper has long ago noticed that the bee uses its antennæ most actively to recognize the queen, or the bees of its own hive from strangers, to scent honey, to care for the brood, to visit the flowers, in fact in every motion that it makes. We would welcome, as a confirmation of our convictions, a statement that the most sensitive, though perhaps also the least visible olfactory organs of a bee had been discovered at the very tip of each antenna.

Dr. McIndoo has promised us some articles, explanatory of his studies, to be published shortly. They will be welcomed by our readers in both hemispheres.

Farm Beekeeping—Missouri

We are told that the Missouri farmer "wants to be shown" before he will

accept new things. Here is a very neat pamphlet issued by the Agricultural Experiment Station of the University of Missouri, intended to show the farmer how to become a practical beekeeper. It would be difficult to put more information in 40 pages than is contained in this Bulletin No. 138. It is written by E. E. Tyler and L. Hase-man, and contains some 20 cuts, most of which are original, and may be had by addressing the Experiment Station at Columbia, Mo.

We would suggest that in the next edition they add a chapter on how to recognize and cure foulbrood. It is necessary knowledge these days.

Fertile Workers Laying in Drone Cells

Why do fertile workers lay eggs in drone-cells by preference? Once and only once, I saw a laying worker in what I supposed the act of laying in a worker-cell. Her wings were pushed up about her ears in such an uncomfortable manner that I have always supposed she preferred the larger cell because more comfortable, which notion is strengthened by the fact that she prefers the still larger queen-cell to a drone-cell. C. C. M.

Sixth Annual Apiculture Short Course in Ontario.—This Short Course was held at the Ontario Agricultural College at Guelph, Jan. 11 to 22.

Fifty-nine lectures and demonstrations were given, covering the different phases of beekeeping. Typewritten copies of each lecture outline were distributed to the class so the main points could be followed closely and carried home for future reference. As far as possible the lectures were illustrated with stereopticon views and the actual objects under discussion. Members of the class were also given laboratory practice in hive construction, and a visit was made to the apiary of a successful beekeeper in the neighborhood of the college.

In conducting this course, the Provincial Apiarist, Mr. Morley Pettit, was assisted by F. W. L. Sladen, Apiculturist, Central Experimental Farm, Ottawa; F. E. Millen, B.S.A., Lecturer in Apiculture and State Inspector of Apiaries for Michigan; F. W. Krouse, President of the Ontario Beekeepers' Association; James Armstrong, Selkirk, Vice-President of the Ontario Beekeepers' Association; also some of the apiary inspectors of Ontario. Lectures on allied subjects were given by other members of the college staff. Mr. Frank C. Pellett, State Apiarist of Iowa, paid the class a visit and lectured on beekeeping conditions in his State.

It is proposed to hold a summer school for beekeepers at the Ontario Agricultural College some time in June when bees are active and apiary practice will be possible. Persons interested should write at once for particulars to Morley Pettit, Provincial Apiarist, Guelph, Ontario.

Dr. C. C. Miller's Personal Recollections

Life Story of America's Best Known Beekeeper

[Continued from February.]

ABOUT that time there was started The Marengo Collegiate Institute, and I became one of its teachers. A large building was erected, expenses were beyond income, and in a year it was a financial failure. To me had been assigned the collection of tuition and the paying of teachers' salaries. When the books were closed I had \$50 cash and a small pile of old boards as payment for my year's work.

I was in charge of the Marengo public school at \$600 a year for one year. After an interval I was hired again at \$900, and years later spent another year at it at \$1200. For a time I ran a small select school. In the meantime I gave piano lessons and taught singing-school evenings, and at one time had enough of this to do to make a good living, and for perhaps two or three years devoted my whole time to it.

August 12, 1857, I married Mrs. Helen Maria White, a widow with one child, Nellie, a sweet child 8 years old, who died July 8, 1860. A daughter, Katie, was born April 12, 1859, and died Dec. 8, 1859. A son, Charles Clinton Miller, was born Aug. 28, 1868. I expected him to be a beekeeper, but he was of a different mind. He enlisted in the regular army, then secured a clerkship in the United States War Department, became a soldier again at the outbreak of the Spanish-Cuban war, and at its close became a clerk again in the War Department, where he has ever since held a responsible position.

My wife died March 18, 1880. November 15, 1881, I married Miss Sidney Jane Wilson. A year later her sister, Miss Margaret Emma Wilson, stopped school teaching for a year, to live with us and help at beekeeping. Her temporary stay became permanent, and she has been a very important member of the family ever since. Without her intense energy and efficiency I never should have accomplished what I have in beekeeping.

In 1899 my wife's mother, Mrs. Mar-



DR MILLER AS HE LOOKS TODAY

garet Wilson, took up her abode with us, remaining until Jan. 24, 1913, when she took her departure to her heavenly home, nearly 94 years of age. Her presence in our home was a constant benediction.

My father came of a musical family, and I inherited something from him in that lineal. At family worship a hymn was always sung, and I recall that whichever of the family happened to be the baby, at the time, always added its quota to the noise, if not to the music. So I suppose that is where I began my musical career. I have de-

lightful memories of the hour spent every Sunday afternoon at home singing hymns. When I was 9 years old I took an active part as singer at political meetings, whooping up the elder Harrison for president, on at least one occasion being taken to help in a neighboring town. I served time as a fifer in the Pennsylvania militia. When a lad I led the singing in prayer-meeting, and have been chorister in church or Sunday-school about ever since, part of the time being organist as well.

When a boy I got somehow enough money to buy a violin, and walked 8 miles to Youngstown to buy it. But I never became a distinguished violinist. I also got a flute which I learned to play. I was anxious to learn to play the piano, but pianos were scarce, and the opportunity did not come till I was 22. Then, to add to the chance I had for practice, I drew on paper a representation of the keys of a piano, and practiced on that. At Marengo there was a time when I made a good living by giving piano lessons and teaching old-fashioned singing-schools. Something like two years I spent traveling for Root & Cady, introducing their Graded Songs at Teachers' conventions and institutes. When Moody and Sankey went to Europe, I became a chorister for about two years in the Moody church and Sunday-school. Several of my musical productions were published, one of them, "The Singin-Skewl," having quite a sale. I wrote both words and music of that, the words coming as one of a series of contributions made to The Song Messenger, a musical monthly published by Root & Cady. Some of these were afterward published in a booklet. All were written under the *nom de plume* of "P. Benson Sr., which the Sr. it stands for singer." I wrote the music for most of the bee-songs written by Hon. Eugene Secor. At 84 I sing in the church choir and am chorister in Sunday-school.

When I was a child it was the custom to take all babies to church and Sunday-school, and so I suppose I began such attendance before three months old. I've kept it up ever since. When something over 40 years old I was for several years secretary, and subsequently several years president, of the McHenry County Sunday-School Association, and then for a number of years president of the 2d District (comprising six counties) of the Illinois State Sunday-School Association. This is interdenominational work, which I felt obliged to give up when perhaps 75. Denominational (Presbyterian) work has had much of my attention. I have been a ruling elder in the Marengo Presbyterian church most of the time since 1857, and as such had the highest honor that can be put upon a Presbyterian layman: I was sent as a commissioner to the General Assembly by the Presbytery. While a member of the Moody church I was assis-



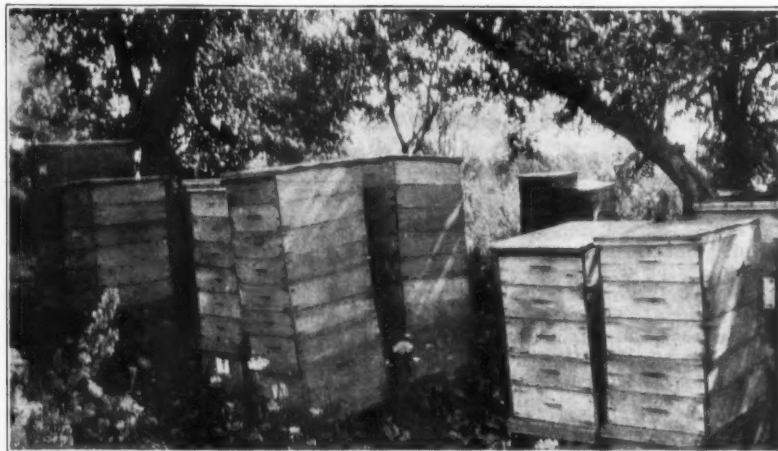
DR. MILLER'S APIARY IN SPRING

American Bee Journal

tant treasurer. When about 75 years old I became a chairman of Committees on Young People's Work in Freeport Presbytery (consisting of nearly 30 churches), having to do with Sunday-schools and Young People's societies. I resigned several years ago, but the resignation was not accepted, and notwithstanding the incongruity of a man of 84 in that position I am still there. For several years I was chairman of the Synodical Committee, having care of reports from all Illinois.

Interest in fruits and flowers has brightened my whole life. The 37½ acres we now occupy I bought as a place for a fruit farm, and acres of it were set in apples, cherries, pears, raspberries, and strawberries. I was the first secretary of the Northern Illinois Horticultural Society, and one year president. Roses have been for years a specialty, and in 1915 there are more than 150 plants, most of them the choicest remountants or hybrid perpetuals. In 1913 I became aware of the great strides made in the improvement of the gladiolus, and in 1915 have more than a thousand gladioli growing. I am trying to keep down the numbers, preferring a smaller number of the choicer kinds, although as yet I have paid no more than \$2.00 for a single corm, and have only 40 varieties.

About July 4, 1861, I was in Chicago, and a swarm of bees came flying over our home in Marengo. My wife got the swarm in a sugar barrel, and that started me into being a beekeeper. My first writing about beekeeping soon began, a number of articles over the *nom de plume* of B. Lunderer being published in the *Prairie Farmer*. Hardly worth while to say more about my career as a beekeeper, since it has mostly been put in print in the bee-journals and "Fifty Years Among the Bees." The friendship of beekeepers, some of whom I have never seen, has been much to me. I take pride, par-



DR. MILLER'S APIARY IN MIDSUMMER

donable, I hope, in having been one of the many editors of the *Standard Dictionary*, and in having held the record for the largest yield of section honey from as many as 72 colonies.

To get a goodly sum of money for a crop of honey is a pleasure. But I don't think that alone would have held me to beekeeping. For every minute I have ever spent thinking of the money I'd get from my bees, I've spent 20 minutes — more likely an hour — in studying over plans and projects for improvement in the management of bees. And at 84 I think I have just as many schemes cooking as I had at 30. Most of them have turned out the wrong way, but enough have succeeded to be of some use. I never made any great invention, never had the slightest thought of inventing a hive, but some little thing here and there, perhaps making some slight change in the plans and implements of others, entitles me to the credit of some things

I may here mention.

Bottom-board (the reversible bottom-board has been called the Danzenbaker, but I don't know of anything to entitle it to that name); bottom-rack; Miller frame; Miller queen-cage (3 kinds); top ventilator in cover over sections; cork-chips for drinking tubs; foundation-splints; Miller feeder; bottom-starters in sections; newspaper plan of uniting bees; robber-cloth; bee-escape (in robber-cloth); short cut in curing European foulbrood; super-filling-board for filling sections in T-super; pounding bees off combs with fist; pendulum plan of shaking bees off comb.

[The end.]

Immunity

BY D. E. LHOMMEDIEU.

IS it the bee-master or the bees that are so-called immune? I believe anything that prevents the spread of bee-diseases tends toward exemption or immunity. There is no bee-yard anywhere in the United States but may at some time contract either of the foulbrood diseases. The careless beekeeper should quit the pursuit. But if you are in it for other than the dollar entirely, you need not be afraid of the foulbrood diseases.

First, next spring when you set your bees out for the summer, don't put them in nice straight rows so they will take a fine picture, don't set them in two and two, or three and three sets, but study the location of each individual hive, study the line of flight to the open, so the bees of one hive do not fly too closely in front of its neighbor, as the hive nearest to the open will get some stray bees, and the farther hive might be the one to contract the disease; as a result you would have two diseased colonies in a little while. Have some special mark, a stick, bush, stone, or anything different from the hives anywhere near by. Give plenty of room where you can; it pays.

Second, if you are a careless beekeeper, you are far from being immune, do not set your bees to robbing, do not let the disease get a start. Lift a brood-comb from the center of the colony next May, in dandelion time, looking carefully for even a diseased

My young friend for best success, get pure stock, keep tab on every pound of honey taken from each colony, then breed from the best storers that are all right in color and temper.

Cordially Yours,

1/31/16.

C. C. Miller.

cell, if none, pass to the next hive, etc. Keep in touch with each hive every three weeks until they are in shape for winter.

Third, we turn to the bees themselves. Any strain of bees that are disposed to rob and forever prying around other hives, slipping in just wherever they can, are the ones that will carry and contract diseases first; breed from such as show a disposition to get right out into the fields for stores. Weed out the robbers and persist in this, even if you are obliged to change your present stock; if you are a close observer you can soon mark the robber hives to be requeened. My experience with blacks and goldens is that they are bad on this one point. That is why the blacks are not called immune. If the American foulbrood once gets a start in any hive, you will find that no race or strain will clean it up so that you can depend upon it, if you leave the bees to clean out the combs.

Colo, Iowa.

[The elder Dadant, who lived and kept bees in localities where foulbrood was unknown and who never saw a case of foulbrood was nevertheless very particular in giving each colony, as much as possible, an independent flight opening through the bushes or trees of the apiary. He insisted, as does our esteemed correspondent, that when two or more colonies have a confused flight-opening, there is considerable danger of one of them gaining many stray bees, from the others, especially when first removed from the cellar or when the young bees take their first flight. Either the strongest, or as Mr. Lhommedieu puts it, "the nearest colony to the open" will be likely to gain at the expense of the others. There is probably more in this than most of us realize. Successful beekeeping is made of details.—Ed.]

The Bee Pirates of Africa

WE beekeepers who must use so much care to prepare our bees for the long winter months sometimes feel that beekeeping must be a joyful business in warm countries where they can fly every day in the year. In reading the literature relating to bees kept in such climates, we are struck with the number of annoyances which the beekeeper meets that are unknown to us of the lands of snow and ice.

A recent number of the South African Beekeepers' Journal devotes much space to the habits of the bee pirates, notes upon which may interest our readers.

The bee pirates are digger wasps. Two species are given as destructive to the bees. Other species are common in America but are not referred to as enemies of bees, since they capture other insects which are taken to their burrows to furnish food for the larvæ. One of the African species is said to catch the bees on the flowers, while the other catches them more frequently

at the hive entrance. As many as 400 pirates have been captured around one hive. It will be apparent to the reader that such a pest must be very serious in the apiary. It is not an easy matter to deal with such a nuisance. About the only effective methods are swatting them by hand as they fly about the hives or setting traps. Two kinds of traps which have proved effective are described. Covering branches of trees with bird-lime and placing them near the hive is one of the methods described.

When a pirate alights on the branch its feet are held by the sticky matter, such as "tanglefoot" in catching flies. A white plate or basin filled with water and oil is also recommended. The plate method is said to be the simplest and most effective way of fighting the banded pirate which comes to the hive to capture its prey. Some bees also fall into the water, but the number is small compared with the number saved from the pirates destroyed by the traps. Paraffin is given as the best oil for the purpose. No method has as yet been devised for catching the species that capture the bees afield as their habits are such that very small numbers could be caught by any trap.

The pirates are not large insects, measuring but little more than half an inch in length.

Honey Sources in Tennessee

BY ADRIAN GETAZ.

Read at Southern Conference for Education and Industry at Chattanooga, Tenn., April, 1915.

THE first source of honey in Tennessee is from the maples; not from their flowers but from the holes made in the bark by the woodpeckers. Sap exudes from these holes at any time during the winter when there is a spell of warm weather.

Then comes the blossoming of the elms and maples. These furnish both nectar and pollen. The elms blossom a little earlier than the maples. The time is very irregular, according to the weather. If early, the blossoming is gradual, being interrupted by every cold spell that occurs. Later the pear trees peach trees, plum trees and a

few others less important bring their contributions. In this latitude no time can be set for their opening. The apple trees require more heat to develop and therefore do not open until spring actually comes. The date for their blooming is more regular than for the other fruit trees. Here, around Knoxville, it is about April 1. They are in bloom about three weeks; occasionally, when the weather is very warm only two. The orchard business is neglected in many localities throughout the whole South, and the yield of nectar and pollen none too good at its best. Add to this the interruptions in the gathering, from cold or rainy weather, and it is easy to understand why often the colonies are too weak to take advantage of the flow when it comes.

White clover has never given me any surplus. It begins usually a week or so before the end of fruit bloom and keeps up brood-rearing in the interval between it and the poplar (tulip tree) blossoming. The statement has been made often that south of Mason and Dixon line white clover doesn't amount to anything so far as the production of honey is concerned. There might be an exception where the soil is rich and moist.

Our first surplus comes from the tulip tree. Here it begins during the last week of April or the first of May. The yield is heavy and seldom fails. It lasts 20 to 25 days. The honey is dark amber with a reddish tinge, the taste a little strong. The black locust and honey locust bloom at about the same time, but do not yield as much. Their honey is medium or golden amber, and has a better taste than the poplar honey.

The next source of surplus is honeydew. This is extremely variable in quantity and quality. It comes chiefly from the hickories and white oaks. There is no regular date for its appearance; sometimes in May or June. It lasts anywhere from nothing to four weeks. It may be scant in quantity or abundant enough to actually drip from the trees. It may be fairly good or abnormally bad. Often it is good at the beginning but gets bad as the season advances. When good, if the word good may be used, it is of a medium amber color with a blackish



A DIGGER WASP, *Sphex ichneumoneus*.—(From Banks, Bulletin U. S. National Museum)

tinge, just such as would be produced by a small amount of ink mixed with amber honey. The taste is slightly nauseating as far as I can describe it. If the crop is taken in sections, that peculiarity disappears in three or four months and leaves a honey of good quality. But if the honey-dew is bad, quite dark, and of an abominable taste, it is not fit for anything.

When there is a honey-dew, there is a gap between the poplar and the persimmon blossoms. This last begins on or a little before June 1, in this locality and lasts 10 or 12 days. The yield is usually good and the honey of good quality, medium amber in color. If the weather is not too dry, some minor sources, weeds and such give enough to keep up brood-rearing during the gap. There is also a gap between the persimmon and sourwood blossoming, unless there are lindens in the locality, which is not the case in this neighborhood.

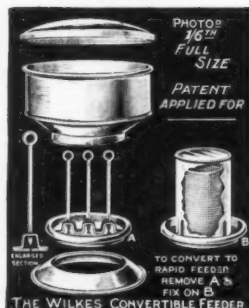
Sourwood honey, if pure, is the best we have in America. It is water white, very sweet in taste with just enough of a delicious aromatic flavor to fulfill the the highest ideal of what a nectar fit for the gods should be. But it is not often pure. Some honey-dew or persimmon honey may have been deposited in the comb previously. Or there may be a mixture of linden honey if there is any tree within reach. The sourwood begins to bloom about June 20 and lasts until the middle of July. This ends the flow or rather the surplus season. I understand that the lindens begin to bloom about a week before the sourwoods, and that their blossoming lasts about three weeks.

Sometimes the sourwood crop fails completely. At that time of the year there is an increase of rain that corresponds to the rainy season of Cuba, South Florida, etc., and some years showers occur almost every day and interfere with the gathering of the nectar. Nectar in small quantities is obtained from different sources after the main flow, from melon fields, cow-peas, soy beans, cotton, etc. These depend upon the amount of rain that may fall. After a good rain, they start nectar production only to stop after a few days. One of the chief conditions for the production of nectar is an abundance of moisture in the ground. There must be enough to supply the evaporation through the leaves and some besides for the nectaries.

Of these small sources, two need special mention. One is the late flowering sumac. The yield is good, but unfortunately there are too few bushes to

The Wilkes Convertible Bee Feeder.

No. 69



Perfection Feeder,



amount to anything in the line of surplus. It blossoms during the middle of August. With enough of it a fair surplus might be obtained. The other is a tall perennial plant similar to the wild sunflower so far as the stems and leaves are concerned, but with an entirely different flower. I do not know the English name of it. I think the botanical name is *Verbesina occidentalis* (L.) There was but little of it when I came here, but it is gaining ground in some localities. It resists the summer drouth better than all the other summer plants. If the weather is not too dry some surplus is obtained, about once in three years. The blossoming is during early September. The honey is somewhat darker than medium amber, but good.

The fall honey comes altogether or nearly so from the asters. These blossom during the last half of September and the early part of October. A light frost does not injure them. The yield would be good if the days were long enough and warm enough to permit the bees to work freely on them. Usually they get enough to make up their winter stores. Once in a great while some surplus can be obtained. The honey is white and quite good, but candies very soon, even when in sections.

Knoxville, Tenn.

British Feeders and Feeding

BY D. M. MACDONALD.

EVERY beekeeper, all the world over, recognizes the necessity for feeding his bees under certain circumstances, and almost every individual has his own favorite form of feeder; consequently there are many styles and shapes, while their names are legion. Before dealing with a small selection of those used in this country, it may be well to enquire "when should we feed?" Whenever it is discovered that a colony of bees becomes scant of stores from whatever cause, prompt and effective means should be taken to remedy the wrong.

Before entering on the long spell of cold weather, whatever colonies are not provided with the 25 to 30 pounds of good healthy stores deemed necessary for safe wintering, must be fed up to this ideal winter cupboard with

syrup. Then, frequently, we desire to increase our forces, and stimulate our bees and queens to carry on breeding at an accelerated pace in order that the syrup fed may be turned into workers who will still further swell our strong forces. Our queen-rearing boxes, our spring weaklings, and the small lots made for increase also demand careful feeding to keep them breeding right on to the end of the season to make "more bees."

At the different seasons syrup of varying consistency should be fed, and at different times the amount supplied must be controlled. Hence we require different kinds of feeders, because we desire at one season rapid consumption of the stores while at another period we desire the bees to take down only ounces. The words "take down" show that we almost universally place our feeders overhead. It will be noted that No. 1, the "Perfection," is a glass bottle resting on a wooden block. It is well suited for stimulative feeding, and can be easily regulated to any number of ounces for daily consumption. The index shown can be turned to any figure from 1 to 10, thus opening that number of holes and making them available to the bees. It is in very general use with the single-hive man, as well as with those possessing up to a dozen colonies.

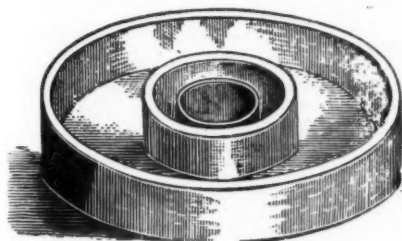
A rough and ready, but albeit perfectly effective, form of this feeder is found in a one or two pound glass honey jar. By placing only one fold of thin cloth over the mouth and tied on it is a rapid feeder, with two thicknesses it yields a medium supply, and with three it becomes a slow feeder. The rapidity of consumption is also made to vary with the thickness of the cloth used.

A more artistic but equally effective feeder is shown in No. 2, the Wilkes convertible feeder, which can almost instantaneously be altered from a slow yield to a rapid supply of the syrup being fed. Section A can give one, two or three holes, and when removed and B is substituted, it yields a copious supply. All three act on the suction principle. Bees have to suck down the syrup, which until then is held up by the air preventing its escape into the hive. The bees, while scarcely quitting the cluster of the brood-nest, can supply themselves with a steady yield, just sufficient to induce an increase in breeding or at the will of their keeper, enough to store some in the brood-combs for spare stores. These feeders suit almost any contingency during most of the year, but in

Autumn Rapid Feeder,



Favourite Feeder.



autumn when it is necessary to feed rapidly another set of feeders is used, acting on a different system.

When feeding up winter stores in September, now being almost universally recognized here as the time to feed bees (spring stimulation in autumn), these appliances require to provide ready access to the syrup by a large force of bees at one time. We have this secured in illustrations 3, 4, and 5. The first is made of tin, an objectionable medium perhaps for feeding bees, but it will be noted that the bees come little in contact with this material, as the footholds found around the interior are made of circular rims of wood on which the bees rest when sucking up the syrup. Number 4, the "Favorite," is constructed on the same principle, but it has the advantage of being all wood, being turned out of a solid block; therefore, bees take to it readily. Of late years it is becoming very popular, and bids fair to be the regular favorite with suburbanites and similar classes of beekeepers.

Both of these have the advantage of being easily cleaned, a necessity if the food given to the bees is to be wholesome and guaranteed to keep well. Bees have to leave their warm nest and ascend to the syrup compartment, but during early autumn that is no detriment, as if the food is supplied hot this space is as warm as any part of the hive. A strong colony carries down 5 to 10 pounds of syrup. Yet another style is very popular. With these the bees have to rise still higher above their frames. The well known "Canadian" feeder is a first-class specimen of the type, and is almost universally used in this country when feeding up driven bees in autumn. My own took 10 pounds of syrup at one time, and a special one had a capacity for 20 pounds. They did very efficient and rapid work, and with one, or at most two fillings, supplied the necessary winter stores.

Illustration No. 5 shows a reliable and rapid float feeder, every part of it constructed of wood. It is generally made longer than shown, and the compartment in which the food is found is divided from the other by a division of perforated metal through which the syrup runs, raising the float gradually, so that no bees are drowned. It is generally supplied with a sheet of glass for an inner covering, to show when it needs replenishing, and over this is fitted a wooden lid or cover. To enable bees to ascend to the food in each case the quilt or lower coverings have a round or square hole to provide access. If there are four, the piece is so cut in each that one when folded back

points to each point of the compass, thus securing a level site for the feeder.

Formerly I did open air feeding, but later the presence of other bees induced me to discontinue it. A very large glass case was hung from the roof of a shed, to which the bees had ready access. Even in rainy weather they worked in comfort under shelter. Another open air feeder was in the form of a shallow trough into which a small quantity of warm syrup was poured every hour on fine days. The food was little more than sweetened water and served to keep bees contented.

Another feeder, somewhat like No. 5, had two compartments, one for nitrogenous and the other for non-nitrogenous food. I was able to feed not only syrup but also flour inside the hive.

What we call soft candy is a favorite food with many. In winter and early spring it is the only food admissible. The provision of a two or three pound cake above the frames saves many a good colony from death. At times it is medicated, and in spring, very generally mixed before cooling with rye meal or flour as "bee-bread" for the baby bees.

As a spring stimulant, I prefer a fine fat comb reserved from last autumn. For gentle stimulation the cells are merely scratched, and the honey does not run, but the bees scent the rich store and gradually turn it into more bees. This is an excellent spring stimulant.

Pollen in most seasons is rather scarce, so I supply a substitute by placing an artificial supply in corners of the garden only on bright days, and on very sunny ones I fill the crocus cups as I go up and down the rows in two large beds of the bountiful bee flower. Water is amply supplied, often renewed, and given as warm as possible.

Three other plans deserve at least mention, the frame syrup feeder, and the dry sugar feeder favored by Simmons, both used at the side of the cluster, and feeding with comb the cells of which are scratched and then placed flat above or below the brood-nest. I rather like the last.

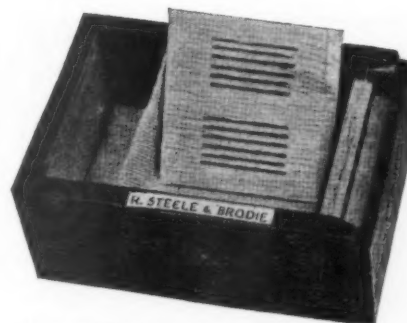
Banff, Scotland.

Food Value of Honey

BY J. E. CRANE.

I CONFESS it was a treat, on opening the American Bee Journal for December, instead of the often repeated statement that honey is a luxury, I found a well illustrated article showing very conclusively that honey has greater food value per pound than most other articles of diet that are esteemed necessities, and for which more money is paid.

Let me give another illustration: Take a pound of butter that costs 32 cents, and work into it a pound of good granulated honey costing 16 cents, and we have, at the cost of 24 cents a pound, an article that the average boy or girl would prefer to spread on their bread to butter alone. I believe there can be no mistake about the correctness of these statements, and the question at once presents itself how can



these facts be brought before the mass of consumers. I suppose no nation ever spent so much for advertising as the American people. Almost every paper, magazine or periodical has all sorts of ads, religious and secular, political and business, pictorial and plain, ads that bring results, and ads that waste money.

I doubt it will ever pay to advertise snowshoes in New Orleans, or hardware in a ladies' fashion journal, but advertising is nevertheless a very practical way of educating people on many subjects. The present use of cereals for breakfast food has come from the extensive advertising of these foods. The margin on the sale of honey is too small to admit of such expensive advertising, but when I saw that article in the American Bee Journal I said at once, why cannot this or something like it be put in a leaflet or folder and given away with each retail sale of honey? If I go to the drug store and buy a tooth brush or a bottle of turpentine I am pretty sure when I get home to find a little leaflet wrapped about the bottle. Cannot we beekeepers take the hint? A leaflet on the "Food Value of Honey" would doubtless be read by all lovers of honey, and what is of even more importance, they would tell their neighbors and friends about it, and so the news spreads, for it would be news to the great mass of people.

I believe we would be surprised if we knew how much people talk about what they eat, especially children. Why not give them a chance to talk intelligently about honey? People who buy and eat honey do so because they like it, just as girls buy and eat candy and boys buy and smoke cigarettes. How much better would it not be if they knew that the use of honey in our diet is as legitimate and as economical as the use of eggs or oranges?

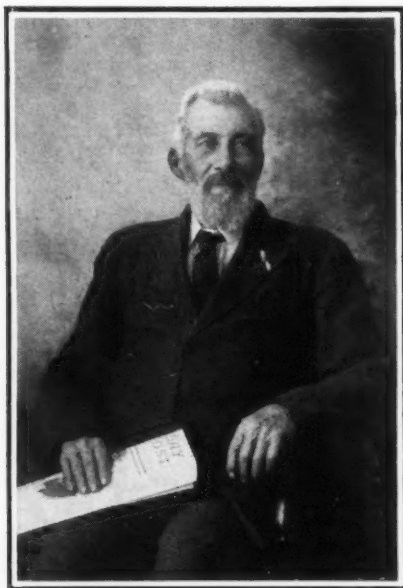
What kind of a folder shall we have? The facts should be boiled down to the limit. Whether a leaflet or a larger folder, it should be made as cheap as possible so the beekeeper or bottler can buy and use them by the thousands, so that as our goodly land flows with milk and honey, it will all be called for at paying prices.

Middlebury, Vt.

The Passing of a Well Known Beekeeper

BY J. E. PLEASANTS.

DELOS WOOD, a well and favorably known beekeeper of southern California, has recently passed away. He was born near Madison, Jefferson



DELOS WOOD ON HIS 75TH BIRTHDAY

Co., Ind., Jan. 10, 1838. At his marriage, which took place November, 1861, he purchased a part of his father's farm, which had been his boyhood home, and built for himself, living there until he came to California.

During these years he was a breeder of fine stock, introducing into this county the first Costwold sheep, Chester white hogs, and Light Brahma fowls; all of which he raised and sold at high prices, winning many premiums at State and County fairs. He was also indirectly the means of introducing other fine stock into that section.

His father had been a beekeeper in the old-fashioned way of many years ago, and the son continued the business under new and improved methods, being the first in that part of the country to introduce Italian bees and use a honey extractor.

He was prominent in the Grange movement, and for the greater part of his life a writer for agricultural and apicultural journals. He was for many years a regular correspondent of the *Indiana Farmer*. After the starting of the *Western Honey Bee*, a few years ago, Mr. Wood's articles entitled "Chips," had a regular place in its pages.

Mr. Wood was a soldier of the Civil War, having served partly in the State service, but chiefly in the 29th Indiana Infantry.

He came to California October, 1881, and since that time his home has been in Santa Barbara and the immediate vicinity. He was all the while more or less engaged in bee-culture. In 1884 he had charge of an apiary of 700 colonies, from which was sold 20 tons of extracted honey at \$200 per ton wholesale; most of it being shipped to Europe.

Later he owned a small ranch a few miles from Santa Barbara, where he devoted himself to the rearing of bees and strawberries. One season he sold \$300 worth of berries from one-fourth acre. In 1905, in Mr. Wood's absence,

the ranch was swept by a mountain fire and all buildings, apiary, etc., were completely destroyed, as well as much timber. Since this occurrence he has not been in business for himself, but has been employed by several of the leading beekeepers of the southern part of the State, chiefly in Ventura county. For the last three years he was associated with W. H. Allen, of Satcoy, and had arranged to remain with him another year.

Mr. Wood was for many years a member of the California State Beekeepers' Association, and was made a life member some years ago.

He died at his home, 725 East Gutierrez Street, Santa Barbara, Calif., on Jan. 6, 1916. Although his health had been failing for some months, his last real illness was very brief. He attended a meeting of the State Association at Los Angeles, was caught out in a cold rain without sufficient protection, and contracted a heavy cold. He came home New Year's night in another rain. The cold rapidly developed into grippe, which, with heart failure, ended his life in five days. He lacked four days of being 78 years old.

He is survived only by one daughter, Miss M. C. B. Wood, his wife having passed away nearly 17 years ago.

Orange, Calif.

No. 15.—The Honey-Producing Plants

BY FRANK C. PELLETT.

(Photographs by the author.)

IN this series of articles we have given the same attention to the pollen flowers as to those that secrete nectar. While the latter are much more important it is very desirable that the beekeeper be familiar with the sources of pollen as well. In this article we present some plants which are of value as pollen producers only, and which cannot be said to be "honey plants."

ELDERBERRY.

The American elder or elderberry is a common shrub from New Brunswick west to Saskatchewan and south to Arizona and Texas. Figure 70 shows the flower clusters of the common elder, *Sambucus canadensis*. Since the plant blooms late May and June, there is usually an abundance of pollen in most localities. The bees, however, gather the pollen freely at times, and it is of value where pollen is not plentiful at this season.

The berries are used for pies and wine. The flowers and bark are used to some extent for medicinal purposes.

HOPS—*Humulus lupulus*.

The common hop plant is too well known to need description. It is common from New England to British Columbia and southward. It is very generally cultivated for making yeast and for medicinal purposes. The small greenish flowers are wind pollinated. It furnishes pollen in abundance but no nectar. Fig. 71.

PEONY.

The cultivated peonies are introduced from Asia, and are commonly grown for ornament. Most varieties are double and produce no pollen. The single varieties, however, produce pollen in abundance, and at times the bees seek them eagerly. The writer has seen as many as six to eight bees gathering pollen on a single blossom. Fig. 72.

Atlantic, Iowa.

Copyright: 1916, by Frank C. Pellett.

Michigan Short Course.—We have just received the program of the Michigan short course in beekeeping which will be held at the Agricultural College at East Lansing March 13 to 18. Prof. Morley Pettit, of Ontario, and Mr. Ira D. Bartlett, of East Jordan, will assist Prof. Millen in giving the lectures. A very attractive program is outlined, but space will not permit presenting it in full.



FIG. 70—ELDERBERRIES IN BLOOM



FIG. 71.—HOPS ON A ROADSIDE FENCE

A Venture in Southern Bee-keeping—The Season's Work

BY J. F. ARCHDEKIN.

(Continued from February number.)

THE spring of 1915 was a very backward one all over the South. Old residents of this section told me that it was the latest spring in 30 years. Our bees had a fair amount of stores, but as soon as brood-rearing started in strong and the population of the colonies began to increase, these stores diminished rapidly. There was some bloom out, but it was so cold and cloudy that the bees could hardly get a chance to fly. When a nice day did happen along they brought in large quantities of pollen from a small yellow flower that grows all over the fields and from wild berries and willow. But the nectar secured was negligible, so that by the middle of March we had to begin feeding sugar syrup.

The feeding was done in the open from wash tubs, so the wild bees, of which there are immense numbers in the woods, were fed gratuitously. I was kept busy every day making syrup and looking after the yards, so that shop work had to be neglected. It was very discouraging, to be sure, but as the old saying goes, "Every cloud has a silver lining," we determined to see the game through. By the first of April a good part of our colonies were in fair shape as to strength, but none of them had more than two or three days' supply of stores. They were down to their last biscuit, so to speak. If only the tupelo, whose buds had been swelling since March 1 would open, all would yet be well.

Then all at once the weather cleared. Willow, which had been in bloom for some time, began to yield. A day or two later the tupelo opened and such a scramble I never saw among bees. In just three days colonies which had been in a starving condition were

crammed with honey and the queens honey bound. An apiary was the busiest place I had ever been in. To hear the noise one would imagine a first-class job of robbing to be in progress. All the bees old enough to fly went to the fields, so that on opening a hive it appeared to have lost half of its population, and cross! I never saw bees as cross in my life. They were about as sociable as hornets.

White clover began to bloom in a few days, so that we had three sources of white honey at the same time. The best of these were tupelo and willow. White clover does not seem to yield here like it does in the Central States, although it is as plentiful here as I have

ever seen it anywhere. The rush continued 10 days, during which time our bees stored a fair crop of honey. Then we had rain and a cool spell for a day or two that practically ended the tupelo and willow. Soon after this a red colored honey began to come in a light flow which lasted all summer. This long summer flow is the finest thing imaginable for queen-rearing and making increase. Combined with the warm, even temperature of this climate it makes the queen-breeder's life happy.

By Aug. 1 we had a fair crop of red honey on the hives, and were on the point of splitting our colonies in two for increase when I was seized by an attack of appendicitis. We started for New Orleans the night of the 10th, and the next morning I underwent an operation. I was in a desperate condition, but am happy to relate that I came out fine, although there was some doubt for a few days. It was a harrowing experience.

This ended my bee-work until the middle of October. Although I got home Sept. 4 I had to lay by and have done very little work until lately. About Sept. 10 the fall flow came on in earnest, but the hives were already packed with the summer flow, and so this crop was lost. The fall honey is a light amber and is very delicious. This lasted until Nov. 1. Bees are still at this date (Dec. 10) bringing in pollen on warm days.

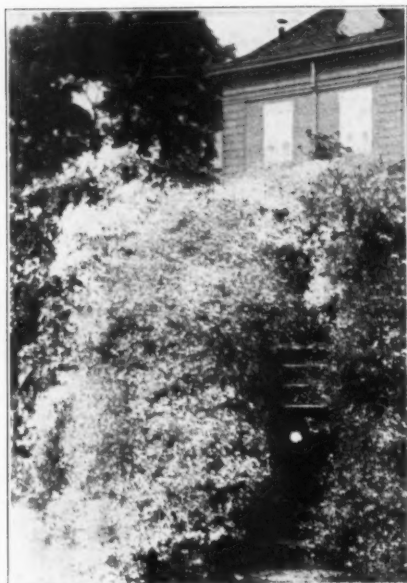
The sources of the honey flows and some other interesting features have been mentioned only incidentally. I will now endeavor to tell what I have been able to observe during the short time we have been here. I have no technical knowledge of botany and am not able to give the names of many flowers which are important honey sources here, and some sources I have not located yet.

This locality is surrounded by swamps on both sides of the Bayou. In these



FIG. 72.—SINGLE PEONIES PRODUCE QUANTITIES OF POLLEN

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CLEMATIS—Photo by Pierre Odier

swamps grow an endless number of different trees, bushes, and plants, the bloom of which is visited by bees. A naturalist would be wild with delight over the flowers, insects, animals and birds which they contain.

The first flower that opens is a variety of wild lettuce. It springs up quickly and covers the fields. Wild berries and field daisies and a large number of other flowers whose names I do not know immediately follow it. Then hawthorn comes on, and as it is in endless variety it lasts until mid-summer. All these furnish plenty of pollen and some nectar, especially the hawthorn. Willow and tupelo furnish the nectar for the spring honey crop. Willow only yields pollen at first, but when it and tupelo open up, there is as the song has it, "A hot time in the old town." Toward the last of the tupelo white clover yields, but is not very important, at least it was not this year, although it is abundant.

There are whole forests of tupelo all around the inside of the Bayou, and tupelo honey is therefore the principal one composing the blend. Being a natural blend this is an excellent honey of heavy body and good flavor. It is practically a white honey, the tupelo giving it the faintest lemon shade which is characteristic.

Soon after the close of the tupelo flow a thin red honey begins and continues all summer. A glass of it held up to the light resembles very closely a glass of wine in color. It is a very poor grade of honey and has a very pronounced sour taste. A peculiarity of this honey is that it fermented in the combs this summer before and after it was sealed. I don't remember ever having heard of honey souring in the comb after being sealed, and I am informed by resident bee-men that it has never occurred before. Every hive in all our apiaries contained fermented sealed honey. I do not know the source. The swamps are almost impenetrable during summer, and the mosquitoes are so bad that I did not attempt to locate it. Some of the lakes

are covered with water hyacinth which bees visit, but it is not plentiful enough to yield all this honey.

About the middle of August a weed called senna blooms and a number of other field plants, and the flow gradually increases so that by Sept. 1 a heavy flow develops. By Sept. 10 the goldenrod and horsemint begin to bloom, and these two furnish the nectar for the fall flow. There is some Spanish-needle, too. Like the tupelo, the extent of these plants is immense. I saw one field of goldenrod 1000 acres in extent. The yield is wonderful. The bees work just as hard as they do in the spring flow, and as these two sources last a month a big crop can be secured. Unfortunately I was not able to take advantage of it this year owing to my convalescence from the operation.

This is the best table honey to be had anywhere. The horsemint honey

is water-white, but the goldenrod colors it to a light amber. It has a smooth pleasing flavor and a heavy body. From the opening in the spring until Nov. 1 there is never a day that nectar cannot be secured except rainy days. There is such a multitude of flowers that the flow never stops.

Before coming here I was told that ants were very bothersome and would kill colonies in this country, but I find this to be a mistake. There are none of the big black ants common in the Central States. Instead there is a small red ant which occasionally gets into the crevices around a hive and makes a nest. They are harmless, but they have a slightly larger brother red in color that gets under a hive bottom if it is set down flat on the ground and makes a nest. He is a fierce fighter if disturbed and will bite one's hands. As far as I can see he does the bees no harm, and if the hives are blocked up



The pictures show two honey plants which bloom here in August and September. The Persicaria was visited by thousands of bees. The Clematis was less sought.

—Pierre Odier, Celigny, Switzerland.

of the ground as they should be there will be no ants under them. In fact, the country is remarkably free from enemies of the bee, the only one worth mentioning being a large black spider which occasionally gets into a hive during the winter and spins a web to catch bees, but he can't cause much trouble.

There are two periods when it is most profitable to make increase. The first is at the close of the tupelo. Two or three frames of brood with adhering bees can be taken from each colony and put in a hive on a new stand together with a ripe cell. The hive can be filled out with frames and they will draw out a set of combs and store a super of honey in the full flow.

Then about Aug. 1 the extracting stories can be set off on new stands with what bees they contain and a couple of frames of brood and a cell. These will also fill a super of honey in the fall. I have demonstrated the above plans and know that it can be done. It is possible to treble the number of colonies in one season and secure both the spring and fall crops which are the most valuable ones.

Bordelonville, La.

Displays as Advertising

BY G. W. JUDGE.

MANY beekeepers complain that they experience great difficulty in disposing of their honey and wax. This in many cases is the fault of the beekeepers themselves; they fail because they do not cultivate that enterprising spirit which characterizes the successful business man.

The public generally is very ignorant on the subject of honey and its uses, and even in these enlightened days I have repeatedly been asked how to separate the honey from the wax of a first-class section to render it fit for the table. Honey is generally regarded more as a luxury than as a food. This being so it is to the advantage of the honey producer to take every means in his power to educate the public and so encourage its consumption as an article of daily diet. A good way of doing this is to make displays of bees, honey, honey products, etc., at local flower and vegetable shows. The enclosed photograph is of a display the writer made a year or two since at an exhibition of this kind. The observation hive (seen on the left of the picture) never fails to attract the attention of a large number of visitors, and if the exhibitor is present he should take this opportunity to explain the habits of the bee, and in particular the virtues of honey as an article of food.

In this display there was approximately 220 pounds of honey, wax, mead, vinegar, cakes, etc., staged, and although the photograph does not render the color of the honey and wax accurately, it shows the manner in which it was arranged.

By putting up a first-class article in suitable receptacles, one is able to command the maximum price. Here in England for years past I have always been able to dispose of much more honey than I could produce at one shilling (25 cents) per pound jar of extracted, or section of comb honey.

Bartford, England.



HONEY EXHIBIT AT AN ENGLISH FLOWER SHOW Copyright

BEE-KEEPING FOR WOMEN

Conducted by MISS EMMA M. WILSON, Marengo, Ill.

Surplus Combs of Honey

About this time of year, every woman worthy of the name of beekeeper should be doing some planning as to how to do better for the coming season. There are beekeepers—both women and men—who can make no improvement in one direction, having for years made it a practice to save up an extra lot of brood-combs full of sealed honey, ready to be used in the fall or spring, wherever they will do the most good by being given to the bees. The probability is that the number of such is very small. Another small number make partial provision, leaving a large number with whom the season closes with never a pound of honey but what is in the brood-chambers of their hives.

With those who have large hives this does not matter so much, for in these the bees have enough room to

store sufficient to last until they can again gather in the following season. Even then there may be advantage in having combs of honey for the following spring, for in most places the early honey is more salable than the late. Suppose we have a colony in a 10-frame hive with just enough honey to keep the bees from starving until the flow, say of white clover, begins, the next summer. But when that flow begins there will be empty cells enough to hold 10 pounds of honey or more, and those empty cells will first be filled by the bees before they do any storing in supers. If, now, we can give the bees two or three combs of dark honey saved from the previous fall to replace that many combs, they will commence just so much sooner storing in supers, giving us just so much more white surplus. In effect we have disposed of that dark honey at the price of light.

There is another reason for replac-

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ing empty combs in spring with combs of sealed honey. Whatever may be the reason for it, the bees seem a little chary of rearing a large amount of brood when no great amount of honey is present in the brood-chamber. But, as that very practical beekeeper, G. M. Doolittle, says, when there is an abundance of honey in the brood-chamber, the bees say, "There's millions at our house," and they proceed to rear brood on a lavish scale.

Some will say, "Well, if we are to feed, we may as well use sugar and gain the difference in price between sugar and honey. There are places where certain honeys are gathered in the fall that seem to be death to the bees in winter, and in such places sugar makes better food for winter. But such places are exceptional. Wherever good honey is to be had, sugar should find no place in the hive. Good authorities tell us that there are elements to be found in honey not to be found in sugar-fed bees. So it may easily be that the extra vigor of honey fed bees may enable them to do enough work at storing to more than make up for all that might be gained by feeding sugar.

These things all considered, therefore, let it be your earnest determination, if you have never done so before, to end the next season with a fair stock of filled combs ready to meet all emergencies.

DEEP BOTTOM FOR FEEDING.

At the close of the season last summer, as usual, we made the rounds of the hives to see that each colony had stores enough. We found the customary state of affairs, few colonies needing to have any help, nearly all colonies being supplied, and heavily supplied. Herein is a thing rather marvelous: the difference between conditions at the close of the season and a few weeks before. When the flow got to its heaviest the frames were crowded with brood, some of them so much so that not five pounds of honey were in the hive, if there was half that amount.

Looking at it the novice might say, "Why, this state of affairs won't do. When the flow stops there cannot possibly be enough honey in the hive for

winter, and the bees must be fed heavily." Yet a little later the brood-nest is found containing little brood and much honey. How does it come? If the flow is the stimulus that keeps up breeding, why doesn't the queen continue laying just the same until the flow stops? Evidently she diminishes her laying, likely under the direction of the workers, sufficiently early to allow honey to be filled into the cells vacated by the emerging brood. Wise little creatures, the bees.

At any rate we found colonies well stored, as already said, and filled up any that were exceptions to the rule. Yet for some reason there is always a likelihood that when bees are taken into cellar a few colonies will be found not as heavy as desired. So when the two men carried the bees into the cellar—it was Dec. 4—they were told to mark any colony that seemed lighter than the others. There were half a dozen that they marked. It may be remarked in passing that judging the weight of a hive by its feel in carrying is not entirely reliable; still it serves some purpose.

What, now, would you think the best way to feed those marked colonies? We had the very best thing with which to feed them, sealed combs of honey, but to open a hive would unnecessarily disturb the bees, and moreover the hives were all piled up in the cellar,

and it would be no small work to do all the lifting to get each one down from the pile. Well, this is what we did do. We thrust a comb of sealed honey into the entrance of each hive under the bottom-bars. It was a very easy thing to do, since the bottom-board was two inches deep.

It was surprising to see how rapidly the bees took possession of those heavy combs of honey, and in two days the honey was cleaned out from the lower as well as the upper side, and the combs left dry.

This is only one of the advantages of a deep bottom-board, and a minor one, since we do little feeding in the cellar, but it is a nice thing to be able to do it so easily the few times that we do want thus to feed. In the winter it is no small advantage to have an entrance two inches deep, so that there is no danger of its being clogged with dead bees, and to have that deep space under the bottom-bars so that the whole thing can be easily cleaned out any time, although it is not often that we take advantage of this latter item. The freer access of the air to all parts of the bottom-bars is no doubt an advantage.

In summer the deep space is a big aid to ventilation, and to that extent a preventive of swarming. A deep bottom-board is a good thing.

MISCELLANEOUS



NEWS ITEMS

A Book for the Apple Grower.—The Lippincott series of Farm Manuals are very attractive books. "Productive Beekeeping," by Frank C. Pellett, is one of this series, which is intended to cover all branches of agricultural activity. The books are uniformly bound in attractive cloth covers, have colored frontispiece, and are printed on enameled paper that brings out the best effect of the many half-tone engravings

with which they are illustrated.

We have just received a copy of "Productive Orcharding," by Fred C. Sears, of the Massachusetts Agricultural College. Fruit growing and beekeeping are coming to be so closely associated that we feel sure our readers will be glad to know of this book on the apple orchard. Of special interest is the following in regard to spraying while trees are in bloom:

"Avoid Spraying When Trees are in Bloom.—Another important point is the desirability of avoiding spraying while the trees are in bloom. Authorities differ as to just how serious a matter it is, but there seems to be considerable evidence to show that bees may be killed by such a spray. It is also probable that the pistils may be injured if the spraying is done just when they are in "full bloom." In any event there seems to be nothing gained by spraying when the trees are in full bloom, over spraying just after the petals fall. It is certainly worth while to avoid any chance of injuring either the bees or the blossoms."

The price of this book is \$1.50, and it may be obtained from this office on receipt of price.

Our readers who raise poultry will also be interested in "Productive Poultry Husbandry," another of the Lippincott farm manuals by Harry R. Lewis, of the New Jersey College of Agriculture. It is uniformly bound with the others of the series, contains 535 pages



APIARY OF GEORGE M. THOMPSON, OF GRAND JUNCTION, IOWA

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and 320 illustrations. Price, \$2.00. Any of these books can be had from this office.

This poultry book treats the subject very fully from every angle, from choosing a poultry farm, selecting stock and equipping the plant to marketing the product. It is the most complete single volume that has come to our attention. However, we were a little disappointed in not finding some reference to the special needs of water fowl, turkeys, etc. The volume deals entirely with chickens and with general principles. The book is well worthy of a place in every poultry fanciers' library.

New York Advertising Contest.—We are getting many inquiries asking for particulars about our proposed postal card scheme having for its object the booming of honey as an article of food. Some want to know what ideas we want incorporated in the sketches, others what size these sketches should be, others again whether in colors or in black, whether photographs of apiaries are acceptable, etc. To all the inquiries we can only say, you must work this out yourself. We are more after the ideas than the artistic execution of them. One very good thing has been suggested to us. It is a label to nearly or entirely cover the top of a honey section as it stands in the shipping case, with following reading:

This section of Honey (14 oz.) equals in food value

24 oz. of beefsteak.....	30c
or 30 oz. of codfish.....	40c
or 20 eggs.....	50c
or 11.2 oz. cream cheese.....	16c
or 2 quarts milk.....	16c

Comparative figures were taken from the American Bee Journal December, 1915.

One of our committee says: "This is the best thing brought to our notice, although not exactly in line with the postal-card scheme. We may recommend it also used in connection with photo of articles named, all put upon a postal card."

We hope to hear from others.

H. L. CASE,
F. GREINER,
W. F. MARKS,
Committee.

Pennsylvania State Meeting.—We have just received an announcement of the Pennsylvania State beekeepers' meeting which is to be held at Lancaster on March 3 and 4. No program has as yet reached this office, but we presume it will appear in the Pennsylvania newspapers.

Massachusetts Farmers Week at Amherst, Beginning March 13.—Besides the hour program of speaking and discussion, there are several special features offered during Farmers' week. In the wax laboratory there will be throughout the week a beeswax exhibition, showing the raw material, the process

of rendering and the product procured. There will also be on exhibition a large display of beeswax from different parts of the world, and the materials made from it. On Tuesday at 10 a.m., in this laboratory there will be a demonstration of wax-rendering processes.

The Hampshire, Hampden, Franklin Beekeepers' Association will hold their annual meeting in the Apiary Building Thursday at 10 a.m. The business meeting will be brief, followed by an address by Mr. O. M. Smith, president, "Timely Suggestions to Beekeepers," and a discussion by Dr. Burton N. Gates on "Honey Packages, a Standard."

For the purpose of co-ordinating beekeeping work in the several counties of Massachusetts, there will be on Wednesday afternoon at 1:30, Room F, Entomology Building, a conference of county workers and agents. Essex county will be represented by Mr. Fred A. Smith, Director of the Independent Agricultural School of Essex county, where beekeeping forms a part of the instruction. Mr. Chas. H. White, Manager of the Worcester County Farm Bureau, will speak for the beekeeping interests of his county. This will be followed by a general discussion during which several other speakers will take part on subjects relating to county work.

What promises to be an exceedingly valuable contribution to the program is a symposium or round table for the discussion of "Spraying Practices vs. Beekeeping." This will be held in Room F, Entomology Building, Tuesday at 1:30 p.m. Each year beekeepers are taking more lively interest in protecting their colonies against what they have termed a wholesale slaughter resulting from the injudicious use of spray poisons. A corps of authorities, including government, State and municipal officials, will attend, to present the several aspects of this subject which

will be attacked from the standpoint of the beekeeper, chemist, horticulturist, forest entomologist, and municipal forester. After the reading of the papers, there will be a discussion which should arouse considerable enthusiasm.

The Beekeeping Department of the College is prepared to make an elaborate display of equipment.

Illinois Inspector's Report.—Bulletin No. 2, which includes the 4th and 5th annual reports of the Illinois State Bee Inspector may be had on request from A. L. Kildow, of Putnam, Ill.

Mr. Kildow requests the address of beekeepers in the southern part of the State who desire a visit from the inspector this season. He also issues a warning to beekeepers to guard against robbing as spring weather approaches.

Short Course in Bee Culture at Winona Lake, Ind.—There will be given a short course in bee-culture the week of March 20, at the Winona College of Agriculture, Winona Lake, Ind. The course is primarily intended for the amateur beekeepers, but I believe any one interested in bees will find it a week of profit. Any one interested should correspond with Dr. J. C. Breckenridge, president of Winona College of Agriculture, Winona Lake, Ind.

B. F. KINDIG.

The Columbus Meetings.—The fact that special sessions should be held for the consideration of problems relating to beekeeping in connection with the meeting of the American Association for the advancement of science is very encouraging. This annual gathering of scientists brings together the foremost men who are devoting their attention to scientific work, and many hundred are usually in attendance. For



J. W. TINSLEY'S TOWN LOT APIARY AT AMES, IOWA

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some time past there has been a section devoted to apiary inspection, and at the last meeting, at the suggestion of Morley Pettit, a session was also held to discuss the problems of the instructor in apiculture.

At these special sessions representatives of probably 15 or 20 States were present. Many of these men are directly responsible for the inspection work. Others connected with the department of entomology of a State or agricultural college, had an indirect interest. It is doubtful whether so many official representatives of the industry were ever before brought together.

Dr. Phillips presided at the session devoted to apiary inspection and made some interesting suggestions in his opening address. Lack of space, since we have so much convention material, forbids our going into detail as much as the importance of the occasion justifies. The consensus of opinion seemed to be that inspection work should be placed on a higher plane, and the service greatly improved. It was pointed out that in some States the work at present is not efficiently handled nor is there competent supervision.

The suggestion first made by N. E. France, at the inspectors' conference at Keokuk, Iowa, that there should be some plan of cooperation through the United States Bureau of Entomology, to the end that inspectors be promptly advised of the appearance of disease near their borders in other States, was approved. The action of the Keokuk conference in undertaking to work out a satisfactory plan was endorsed. The importance of uniform reports in the various States in order that comparisons of results might be possible, was brought out.

A number of interesting papers which we have not space to review were read. A paper by Dr. McCray concerning the difficulties of diagnosis of bee diseases emphasized the importance of fully trained men for inspectors. Dr. McCray has examined thousands of samples in the United States Department, and has had a wider general experience with the problems connected with diagnosis of the various brood diseases than perhaps any other living man.

Morley Pettit explained the system of inspection as practiced in Ontario, and a general discussion of the subject followed.

At the session devoted to problems in instruction, Morley Pettit presided. The interest in bee-culture is growing at a surprising rate and about a dozen new courses were announced. Among the States where some work in bee-culture is either being given or is planned we made note of the following: Alabama, California, Connecticut, Illinois, Indiana, Iowa, Kansas, Kentucky, Massachusetts, Michigan, Minnesota, Mississippi, Missouri, Montana, Nebraska, New Jersey, New York, Ohio, Pennsylvania, South Carolina, Tennessee, Texas, Wisconsin, and the Canadian provinces of Ontario and New Brunswick.

Since the work is so new there are no precedents to be followed, and those who have the work in hand are feeling

their way cautiously. A committee was appointed to outline a course which would be suitable for general use, in the hope that similar work could be given in all colleges where apiculture is taught. Arrangements for annual meetings were made.

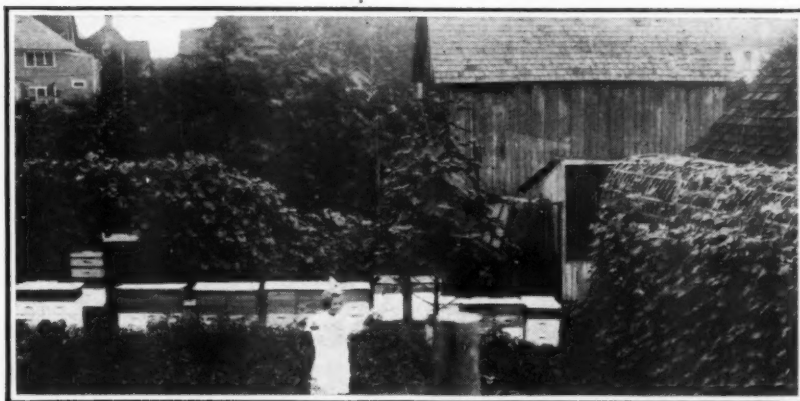
Some Eastern Bee-Meetings.—The writer recently had the pleasure of attending several of the meetings of beekeepers of the eastern States. The weather was rather unfavorable and conditions were such that visits to apiaries along the way were out of the question. It was a great pleasure to meet the eastern men and to learn something of their methods and outlook which differ in many respects from conditions in the West.

The first meeting attended was the Eastern Massachusetts Society of Beekeepers which met in Old South Building in Boston, Jan. 8. Within a stone's throw of the meeting place are historic spots closely associated with the stirring events of the days of our Nation's birth: Faneuil Hall, King's Chapel, Old South Meeting House, Boston Common, and many others. With but a few hours in Boston, there was little time for sight-seeing, but the genial secretary, Benjamin Sands, gave us a wonderful opportunity to make

and do not find it necessary to travel such long distances as we of the West in order to get a sufficient number of people together for an interesting session. The question of securing legislation to prevent spraying while the trees are in full bloom was discussed at both these meetings, as there is much complaint on this score in Massachusetts.

The next stop was at the Agricultural College at Amherst. Dr. Gates has a most interesting museum of apicultural appliances in connection with his department. Of this we will have more to say in another article. At Amherst, the outside attendance was small, as the day was very stormy. A. W. Yates, the well-known inspector of Connecticut, was the only man from outside the State who came. Mr. Yates has been secured by the Agricultural College of Connecticut for a series of lectures on beekeeping to be given at the college during the spring months.

An all night ride made it possible to attend the meeting of the Ontario County, N. Y., Beekeepers' Association the following day. This was the 26th annual meeting of this county association and a strong program was carried out. In this section of New York commercial beekeeping is well developed and a number of those in attendance count their colonies by the hun-



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the most of the short time available. This society has held monthly meetings during the winter months, and holds summer field meetings also. In attendance and interest the meeting compared favorably with many annual meetings that the writer has attended in western States.

Mr. Allen Latham, who is a well-known contributor to the bee journals, was the principal speaker of the day, and talked on "Building Up Nuclei into Full Colonies." A number of well-known persons were present and the discussions were lively. Jos. H. Chase, of Malden, Mass., who is 90 years of age, and who has kept bees continuously for 66 years, was in attendance.

At Worcester, in the evening, there was another good meeting when the Worcester county association held their regular monthly meeting. It is a little surprising to a man from the West to find so much interest in monthly meetings. However, the eastern men are not so widely scattered

dreds. Mr. C. B. Howard, the newly elected president, has 1200 colonies. There was not a minute when discussion lagged or interest waned. Space will not permit a detailed mention of the various papers read or subjects discussed.

From Canandaigua to Guelph, Ont., one passes through the fruit belt and sees some wonderful orchards. In both Ontario and New York fruit growing is highly developed in certain localities and land values are very high. At Guelph the short course was in progress in charge of Morley Pettit. There was a very good class in attendance, mostly farmers who have but a small number of bees or beginners who intend to develop their apiaries. One encouraging sign was that some young men whose fathers are extensive beekeepers were present. When an extensive honey-producer sends his son to the short course it speaks well for the practical nature of the instruction. Prof. F. E. Millen, of the Michi-

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gan Agricultural College, was assisting Prof. Pettit as were some of the practical beemen of the Province. President Krouse, of the Ontario association, J. F. Dunn, of Ridgeway, and Jas. Armstrong, vice-president of the association, were among the number who gave lectures during the course.

Altogether it was a most interesting and enjoyable trip and did a westerner a lot of good to learn something of the way the East do things.

FRANK C. PELLETT.

A. W. Yates to Give a Course of Lectures on Beekeeping.—The trustees of the Connecticut Agricultural College have engaged A. W. Yates, of Hartford, to give a course of lectures on beekeeping accompanied by demonstrations. The lectures will be given on Saturdays during the months of April and May, and will be open to the attendance of students and others who may be interested in this subject. The topics of the lectures are as follows:

1. Establishing an apiary—natural history, hives and location, adaptability of the person.
2. Comb and wax—the mystery and origin of wax, its relation to honey, commercial value.
3. Spring management—the early necessity of a force of young bees to care for the queen, spring dwindling, stimulative feeding.
4. Diseases of bees—causes, how to detect, treat and prevent.
5. Increase and queen-rearing—the importance of good queens, easy methods of rearing and making increase.
6. Wintering—providing the colonies with sufficient stores in a compact brood-nest, packing, ventilation and feeding.

C. L. BEACH, Pres.

Notes from New York State Meeting.—Among the topics that came up for discussion at Syracuse Dec. 7 and 8, 1915, none seemed of greater importance than increasing the demand for honey.

The subject of advertising, thereby interesting the public in our product, had been assigned to a special committee at the 1914 meeting, and this publicity committee reported on the work done. The association voted that certain funds might be used by this committee. The committee favored the scheme of getting up postal cards with attractive cartoons pointing to the use of honey, such cards to be placed in the stores, beekeepers to be instrumental in the distribution. The committee was authorized to offer prizes for snappy, comic, captivating sketches suitable for this purpose.

It was emphasized by Mr. Geo. B. Howe that a proper label would attract the attention of the public, thus serving as an advertising medium. The colors of the label should harmonize with the color of the honey; blue was hardly considered admissible.

As to the wording on the label, the less of reading matter the better, the word "honey" most prominent. The general opinion was that it is not advisable to use either *extracted* or *pure* in connection with honey. We should have a well gotten up label and stick to it. It will become our trade mark.

Mr. Howe uses a stamp in two colors on his section honey. Mr. Arthur C. Miller and Dr. Schamu prefer a small neat label, and say that a section of honey with such a label pasted on the top looks very tasty. Only honey of good quality should be put out under our label or trade mark.

Some previously accepted practices received a black eye in a quodlibet in which Mr. Arthur C. Miller summed up his experiences of years of beekeeping. He said: 1. It is cheaper for the honey producer to rear his own queens than to buy them; their cost is only 10 cents. 2. It is easier to introduce queens by the direct method (smoke method) than by any other. 3. One can produce as much chunk honey as extracted. 4. Requeening each year gives best results, insures greatest uniformity in yields. 5. Honey judiciously given away makes many sales. 6. The least fussing the least swarming. 7. Spring feeding pays when done six months in advance. 8. When feeding unripe honey the bees involuntarily produce wax, not so when feeding ripened honey (a fact of value when feeding back honey to have section honey finished up).

Mr. Miller explained his system of queen-rearing, exhibiting his small nucleus hive and the frame, which is larger than the Swarthmore. During the absence of a honey flow Mr. Miller feeds soft sugar in a little feeder hanging like the brood-frame on the rabbits of the hive; he does not advise to feed honey or even sugar syrup to small nucleus colonies. He rears his queens in third stories; a colony may thus rear queens all through the season; he uses the same wooden cell-cups season after season, grafts his larvæ into these after priming them. By dequeening a nucleus he obtains all the royal jelly needed for this purpose. A little wire nail driven into a stick serves for priming, and for transferring larvæ a toothpick or sliver of wood answers well.

Incidentally Mr. Miller mentioned that quite a saving could be made by using section foundation in the brood-chamber, saying that a sheet of section foundation cost much less than of brood-foundation; and by painting the sheets with melted wax after being secured in the brood-frames, sagging is prevented. The process is like putting a coat of cast-iron upon a base of wrought-iron. He also stated that honeydew is a welcome visitor with him. When abundant he has it stored in nucleus frames for which he has a special super constructed which holds a large number of them. When he gets them filled he preserves them for future use in the nuclei.

Mr. F. W. Lesser, of East Syracuse, gave a very interesting address on comb-honey production and controlling swarming. Said he formerly practiced the Doolittle method, but it did not give him best results. He preferred shaking swarms on a full set of frames with only starters, reducing or contracting after the third day to six Langstroth frames. The honey thus obtained was better, and more of it, expenses less. He summarized his method as follows: Clip all queens early, equalize brood, give set of empty

comb on top to catch early undesirable honey. When clover flow is on give sections instead, baits if possible, put on shade-board and ventilate; visit each yard every week, make examinations by tipping hives back and look for queen-cells. He finds cutting out cells to prevent swarming useless. When necessary he shakes. Re-enforces shaken swarm with bees from old hive about two weeks later, taking about half of the bees, gives plenty of room when bees require it.

Mr. Byer, from Canada, talked about wintering bees in their cold climate where —45 degrees Fahr. is not uncommon. Some years his bees are confined to the hive for five months; still he has wintered them well usually. A good queen is essential, he said, next plenty of good stores. Wants his hives just crammed with honey, provides no empty comb (winter nest). Lots of stores is the best asset to be turned into later; he uses winter cases, taking two hives each. No alighting-board should project where snow might collect and clog entrance. Packing is used on all sides except bottom, finds packing later unnecessary. A combination of leaves and sawdust is used generally and answers well.

The rendering of old comb into wax is very distasteful to the writer; it is a thing he has not yet learned to do successfully and profitably, and he had hoped at this meeting to be enlightened on the subject, but he has to acknowledge that he has brought nothing home that will be a help to him. Mr. Looks was not there, and his paper was read by the secretary. The writer urged to save all bits of comb and bur-combs, scrapings, etc., said that the heat ought not to be applied direct to the wax but to the water only.

From cappings practically all wax is easily obtained even by the simplest method—the solar machine doing good work, but with old comb it is a different proposition. Many beekeepers prefer to send their old combs to the professional wax makers and pay from 5 to 8 cents for the making of it, than do it themselves.

The question: What does it cost to produce a pound of honey? has often been asked. Arthur C. Miller attempted to answer it as follows: The two factors entering into the cost of any article are capital and labor. We may take a hive of bees, fixtures, appliances, comb foundation, etc., at \$10. The interest thereon will be 6 percent; depreciation, 10 percent; labor, \$1.00 per hive or 10 percent; insurance and taxes, 2½ percent; making a total of 27½ percent. This represents the cost of the crop, which, according to the United States census is 55 pounds. Therefore, the 55 pounds cost the producer \$2.75 or 5 cents per pound.

[The writer does not know whether Mr. Miller took into account the buildings necessary, the wagons, horses, automobiles and other equipments, but believes that few professionals produce as low as he figures.]

Officers elected for the year are as follows: President, C. B. Howard, Geneva; Vice-President, S. D. House; Secretary-Treasurer, F. Greiner, Naples. F. GREINER.

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The Missouri Apicultural Society.—The Missouri meeting was held during Farmers' Week at Columbia, Jan. 4 and 5. Two large rooms in the Horticultural Building were allotted to the society. One of these was used as an assembly room, with display of literature and honey. The other contained models of hives and supers, all occupying one long table. On another table were the implements of the craft.

This being the first meeting since the granting of the charter, a constitution and by-laws were adopted. Treasurer J. F. Diemer, of Liberty, unable to be present, sent a short, spicy paper on "How I Began." E. B. Gladish, of Higginsville, also unable to appear, sent his brother, Mr. Charles Gladish. Mr. Gladish's subject, "What Hive Shall I Use?" led to a discussion which brought out the fact that beemen generally are discarding the 8-frame for the 10-frame hive with the Hoffman-Langstroth frame.

The society is most fortunate in coming at once into close relations with the Department of Horticulture of the State University. Dr. Leonard Haseman, associate professor of entomology, aided by an admirable working model of a bee, delivered a plain and very interesting lecture on "The Anatomy of the Bee." It was the kind of lecture that would entertain and instruct a gathering of farmers or of scientists—just the thing for a rural school.

But all the time there was a stream of visitors who demanded to be "shown."

On the last day the program was entirely abandoned and Mr. Tyler, Prof. Haseman and Mr. Darby had their hands full, as they took class after class—a few individuals in each group, past the tables, explaining the nature and purpose of the hive, how and why it is constructed, answering questions on the manipulation and care of bees, elucidating the uses of the extractor and of the different implements to be seen on the tables, and doing a general promotion work. Young men were there who wished to make their farm incomes greater. Students from the university were there, attracted by what they had learned in their courses in entomology; women and girls were there who liked honey and were willing to help produce it. Some teachers and county superintendents were there, who manifested a ready sympathy in the thought that boys and girls might take blue ribbons at school fairs for honey just as well as for corn, poultry or puddings. The society gained a new outlook upon its opportunities, and the prospect is highly encouraging.

Officers were elected as follows: President, E. E. Tyler, Columbia; Vice-president, Emil F. Nebel, High Hill; Secretary, Austin D. Wolfe, Parkville; Treasurer, J. F. Diemer, Liberty.

The society plans to enlist the co-operation of the extension department and the home economics department of the university, and to inaugurate a campaign to popularize the production, consumption and sale of honey on the farms of Missouri. A. D. WOLFE, Sec.

Using Comb Honey Supers for Extracting

How can I use the supers that honey has been taken out of by the bees? I want to work for extracted honey this summer.

CHICAGO.

ANSWER.—I should guess from your question that you have been producing section honey and want to change to extracted. You cannot well use the sections and their containers for extracting, but will have to use frames the same as in the brood-chamber or shallower. If I haven't guessed right, please ask again.

Traps—Why Not Used?

1. Does the Alley queen and drone trap catch the queen every time when she tries to get away with the swarm, and are the bees more irritated than when left to proceed naturally to the limb of a tree?

2. How do the bees act when a trap is used? Do they fly around and come back when the queen is not with them and cluster on the trap? What is the length and height of an Alley trap for a 10-frame hive?

3. What is the reason that beekeepers do not use them more, and there is nothing in the bee journals and papers about them?

ILLINOIS.

ANSWERS.—1. The trap retains the queen and the drones, but you will probably not notice that they are irritated by it.

2. The swarm will issue just the same as if there were no trap, and the bees may settle in a cluster just the same as if the queen were with them. As soon, however, as they discover the absence of the queen the bees will return to the hive. Often they will discover the absence of the queen while on the wing within a very few minutes of issuing, and sometimes not until they have remained hanging in a cluster several minutes. The trap may be of any size, only so it allows no bees to emerge except through the trap.

3. A chief reason why traps are not more used is because beekeepers so generally have their queens clipped and need no traps. Then, too, neither traps nor clipping will entirely prevent swarming, at least satisfactorily. If a trap be kept on, the bees will keep swarming and returning until a virgin is reared, and if the trap prevents the virgin from flying you will have a drone layer on your hands.

Cutting Out Cells When Piping is Heard—Will it Prevent Swarming?

When, in the evening, we hear queens piping, and next morning every queen-cell is cut out will said colony swarm? My contention is they will not. At our State beekeepers' meeting there were some who argued they would.

WISCONSIN.

ANSWER.—When piping is heard in the evening, and cells are killed next morning without missing any, I have never heard of a case where swarming occurred. I think the plan may be relied on as well as almost any plan with such uncertain things as bees. But it is a plan I would hardly advise you to use, since you can get the bees themselves to kill the cells, and they are not in danger of missing cells. When the prime swarm is hived, set it on the old stand with the old hive close beside it. A week later move the old hive 10 feet or more away to a new stand, and all the field bees from the old hive when they return from foraging will join the swarm. That will so discourage the old colony that it will destroy all cells as soon as the first virgin emerges.

Italian Bees—Bottom-Board

1. Can you give a full description of the Italian bee?

2. I have a bottom-board that is reversible $\frac{3}{8}$ inch on one side and $\frac{1}{2}$ inch on the other. Can you tell me when to use each side?

DR. MILLER'S



ANSWERS

Send Questions either to the office of the American Bee Journal or direct to
DR. C. C. MILLER, MARENGO, ILL.
He does NOT answer bee-keeping questions by mail.

One Clipped, All Clipped—Uniting, Superseding

1. I have read that where any queens in an apiary are clipped all should be. The writer added, "If you don't know why, try it and you will learn why." I would like to learn without trying. Can you tell why?

2. When colonies are weak in the spring, all having queens, would it work well to keep them separate, getting the increase of all the queens until just before the honey flow, then uniting to make strong colonies for the honey flow.

3. How do you determine when a queen is unprofitable and should be superseded?

INDIANA.

ANSWERS.—1. I think if any are clipped all should be, just because there's as much reason for clipping all as one. But I don't know any reason why it would not work all right to have only part clipped. At any rate I'd rather have three-fourths clipped than none.

2. Yes.

3. Settle it by the work of the colony. If the colony stores less than the average, the queen is a good candidate for superseding. If it stores away beyond the average, the queen should be allowed to live as long as possible.

Honey Drink for Babies

Articles in the past in our bee journals say that sugar as a winter store leaves the bees in a dull, weak condition in spring, while good clover or basswood honey brings forth

in spring bees full of life and activity. We have had several articles in the past two years on good honey as winter stores. If this is the case it would be well for all doctors to be encouraged to use honey as a baby drink, for if it acts on bees why not on the babies?

NEW YORK.

ANSWER.—There might be some question as to the advisability of giving a daily allowance of sugar to a baby, but I think there can be no question as to the superiority of honey over sugar for that purpose. To be assimilated as food, the cane sugar must be inverted, and it is just possible, at least at times, that the inverting might put upon the tender baby organs too much of a burden, a burden that would be spared in the case of honey, whose sugar is already inverted. Then there are elements, iron, etc., contained in honey that are not found in sugar at all. Although in minute quantity, they are important, and whatever may be best in the case of the baby, there can be no doubt that children in general, and indeed grown-ups, would be better off, in some cases very greatly better off, if honey could replace at least a part of the more than 80 pounds of sugar now consumed as the average for every man, woman, and child in the United States. It is doubtful if the average physician is as well informed as he should be on this subject.

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3. In wintering bees out-of-doors, does the entrance have to be kept open or can I let the snow drift up and close it completely? Will they run out?

ANSWERS.—1. If you examine Italians, as they come from Italy, you will find each worker has three yellow bands, the first band toward the head being often quite indistinct, the other two quite distinct. There are also Italians bred in this country with more than three yellow bands, those with five bands being called goldens.

2. If I understand correctly, when the small side is up there is only $\frac{3}{4}$ of an inch between bottom-bars and floor. That's too small a space at any time, and I would always use the larger side up.

3. So long as the snow remains dry and porous there is little or no danger from having it close the entrance. But if it becomes slushy and then freezes, there is danger it may smother the bees.

No Patent On the Dovetailed Hives

Is the dovetail hive patented or are the other hives patented? My object is this, I can make my own hives and it will save so much; then I would buy the sections. Is the Hoffman brood-frame patented?

VIRGINIA.

ANSWER.—Langstroth took out a patent that covered all movable-frame hives. That patent expired years ago. There is no patent on the dovetailed hive. Indeed, there is nothing patented in the way of hives or fixtures that are in use generally. I doubt, however, whether one beekeeper in a hundred can afford to make his own hives. It's a very nice job to make a hive so that all parts are perfect, and the large manufacturers have everything convenient to make hives on a large scale, so they can sell them at a lower price than the average beekeeper can afford to make them for.

How Many Worker Bees for the First Flow?—Where to Put Frames of Foundation in Hive

1. As I understand, you experts tell us to treat our bees so as to have the most possible workers for the first flow; of course, in every way trying to obviate their forming the loafing habit or swarming fever, and here comes the January Beekeepers' Review, page 5, and says among other things that "We beekeepers think so much of our bees that we almost kill them with kindness," and that a colony with 20,000 workers is better for surplus honey than one with 35,000 workers.

2. If you put five frames of foundation in a body with five drawn combs do you put them together in the middle of the body or to one side, or do you alternate them with the combs?

KENTUCKY.

ANSWERS.—1. Not having the article to which you refer, I do not know the connection in which it was said. But if it means that a colony in harvest-time with 20,000 workers will store more than one with 35,000, the bees being equally good in each case, then it is certainly an error. For every 20 pounds stored by the weaker colony I should expect not only 35 from the stronger, but more likely 50.

2. Something depends on circumstances. Usually I would put the drawn combs at one side and the foundation at the other.

Wintering a Nucleus

1. Is a two or three frame nucleus with a young queen more inclined to brood-rearing late in the fall than a full sized colony? I have wintered such nuclei in this locality out-of-doors, but they are usually short of stores in early spring, one having starved already this winter. I leave as much honey in each of their frames as the full colonies have in each of theirs. Is it because they must eat more to keep warm or do they use it in brood-rearing late in the

fall? Should we leave more stores, comparatively, for the weak colonies than we do for the strong?

2. If we leave cells to hatch in nursery cages without candy and remove those hatched twice daily, will the lack of food this long injure the young queens?

3. If we have the nursery frame in a queenless colony will the bees feed young queens through the wire? I have reared a good many queens with no candy in cages.

INDIANA.

ANSWERS.—1. I think such a nucleus is inclined to rear brood later than a full colony, although I hardly know why. Late rearing makes more winter stores necessary; and it is also true that a weak colony needs more stores proportionately than a strong one. If colony A is twice as strong as colony B, then colony B will use more than half the stores A will—possibly three-fourths as much.

2. Not much; perhaps not at all.

3. Queenless bees will feed such virgins, although there may be exceptions. I doubt if it was a good thing to receive queens with no candy.

Questions About Queens

1. What is the difference between a virgin queen and any other queen?

2. Which is the best to buy to introduce into colonies, untested or tested queen, and what difference is there?

3. Which are the best for gentleness, breeding and honey gathering, goldens or Italians?

4. Is it best to buy queen with pound packages of bees? What advantage is gained by buying pound packages without a queen?

5. What method would you take in introducing a new queen into a new or an old colony?

6. How can a beekeeper keep his bees from swarming about the first of June?

WISCONSIN.

ANSWERS.—1. Every queen is a virgin from the time she is born until she meets a drone, which meeting occurs high in air outside the hive, generally when she is 5 to 10 days old.

2. A young queen begins to lay when she is about 10 days old, more or less, and as soon as she begins to lay she may be sold as an untested queen. Three weeks after she begins to lay her worker progeny will begin to emerge, and if the markings of her young workers show that the queen has been purely mated, she may then be sold as a tested queen. Of course, the average tested queen is worth more than the average untested queen, but she must have a higher price. Some think it better, instead of buying a single tested queen to buy two or more untested ones.

3. There are good and bad in both kinds, but taken on the average most beekeepers prefer 3-banded Italians.

4. If you buy a pound of bees without a queen, you gain just so many bees, somewhere in the neighborhood of 5000. If you have all the bees you want, and merely want to make a change in queens, then it is better to buy the queen without one or more pounds of bees. If you want to increase your number of colonies, then it may be better to buy bees with the queen, especially as in the latter case you save the risk of introduction.

5. To tell all about introducing queens would make a longer story than there is room to tell here. If you buy a queen you are pretty certain to receive with her instructions for introducing, and like enough you will be told to kill the old queen and put in the hive the introducing cage containing the new queen, allowing the bees to eat out the candy that imprisons the queen, thus liberating her.

6. You can keep a colony from swarming by taking from it all its brood but one. Many prefer to let each colony swarm once

only, and here's a good way to prevent all after-swarms: when the colony swarms, set the swarm on the old stand and set the old hive close beside it; a week later move the old hive to a new stand 10 or more feet away. The bees will do the rest.

I advise you, strongly, to get a good bee-book, such as Dadant's Langstroth.

Unfinished Sections

1. I have a number of sections left from last fall in all stages of completion. I believed at that time they would be a big help for next season's crop, and that the bees would finish them into a first-class article. But I learn that such sections will not be of a good color and are apt to granulate sour. In order to use them up I would have to put eight or ten in each colony. Would it be well to use them at that rate?

2. In my apiary of eight colonies I know that six of the queens are young ones. Will that fact tend to lessen the swarming impulse?

3. In buying queens would it be well to get them from different breeders rather than all from one breeder? My idea is that getting a variety might give more chances of finding the best strain for my locality, and when the best strain was found I could build from it in the future.

NEW YORK.

ANSWERS.—1. Those that have no honey in them will work all right, provided they were not left on late enough in the fall for the bees to cover them with propolis. If badly varnished with bee-glue the bees may utterly refuse to use them. You will do well to let the bees rob out those that contain honey. If you set them out to be thus robbed without any precaution, the bees will be likely to tear the combs to pieces; so cover them up in such way as to leave entrance for only one bee at a time. Next time be sure that the bees empty them in the fall. It makes little matter how many you give to each colony to fill.

2. The age of the queens may or may not make a difference about their swarming. If it is a bad season for swarming they may all swarm alike; but if some of them fail to swarm it will more likely be the young ones. In other words, other things being equal, a young queen is not so likely to swarm as an old one.

3. Yes, getting from more than one source may increase your chances, unless you know in advance which was best.

Shifting Frames—Hoffman Frame—Good Yield

1. You say in "Fifty Years Among the Bees," in overhauling a hive the frames containing the brood are to maintain their original relative position. I use the 10-frame hive. If I start taking out frames from the side near me, say first, second, and third do not contain brood and fourth does, do I put in frame three (frame three belonging to the last frame that did not have brood), and then all frames containing brood, and then last the frames that do not have brood? In that case it would change the position, as it would put the brood two frames closer to one side.

2. Is the Hoffman frame good for comb honey, also for extracted? Do you know of a better hive?

3. If you were to start keeping bees what size hive would you buy for comb honey?

4. I use the $4\frac{1}{2} \times 4\frac{1}{2} \times 1\frac{1}{2}$ two bee-way section. Is this about the best section to use?

5. How do you have a swarm that has a clipped queen?

6. I had 22 colonies last spring and increased to 42 extra good colonies by natural swarming, and had 3000 good sections of honey and 500 pounds of extracted. Do you think this a good yield?

IOWA.

ANSWERS.—1. Changing the place of the brood in the hive does not necessarily change the position of the frames containing brood relative to each other. Suppose I am sitting at a hive, and 1, 2, 3, 4, 5, 6, 7, 8, 9, 10 indicates the frames in the hive, No. 1 being the frame nearest me, and 3, 4, 5, 6, 7 (in

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Italics) being the frames containing brood. That's where the brood may happen to be in a strong colony first time it is overhauled. When I return the frames to the hive they are likely to occupy this position: 1, 9, 10, 2, 3, 4, 5, 6, 7, 8. Thus, although not a single brood occupies the same place in the hive as before, yet it occupies the same *relative* position. It is of some importance that 2 and 8 remain next to the frames containing brood, since they are likely to contain pollen, and at any rate that's the way the bees had it arranged. As to 1, 9, and 10, it doesn't matter about their order.

Some one may ask why I change the place of the brood at all. I want the brood-nest changed so that brood shall begin in the frame next to the outside frame farthest from me. Then the next time I overhaul I don't need to lift out all the frames to know how many contain brood, but after lifting out 1 and 9, if I find brood in 10 I needn't go any farther, for I know there is brood in all the rest except the outside one.

The rule to have the frames of brood maintain the same relative positions is not so iron-clad as to have no exceptions; but there must be some good reason for the exceptions.

2. There is no Hoffman hive, but the Hoffman frame is used in the dovetailed hive, which is as good as any for either comb or extracted honey unless it should be to have a hive still larger than the 10-frame dovetailed. The Hoffman frame was one originally with wooden shoulders on the end-bars for self-spacing; but it has been changed more than once, being now a frame with metal spacers. It is a good frame, and perhaps more in use than any other, its popularity being, however, due more I think to its being pushed by manufacturers than to its real merits. For my own use I prefer the Miller frame; although I do not think many others use it.

3. I don't know. Like enough the 10-frame dovetailed or something still larger.

4. It is more generally in use than any other section, and the fact that it is so in spite of the most strenuous efforts of manufacturers to push others ahead is pretty strong evidence that it is really the best section there is.

5. Watch for the queen as the swarm issues (she may be among the first or anywhere to the last), cage her, set the hive off the stand and put the empty hive in its place. By the time you have done this the swarm will begin returning, or it may be a quarter of an hour before it returns. When the bees begin entering the new hive, let the queen run in with them and the thing is done. It is the easiest way there is to have a swarm, for it hives itself.

6. A "good yield" is a comparative affair. What is a good yield in one place may not be in another, and what is a good yield one year may not be so another. You averaged about 130 sections and 23 pounds of extracted honey for each colony, which would be equivalent to something like 170 pounds of extracted. This with 91 percent increase sounds good for almost any time and place.

Poor Queens

I have two queens out of the same brood of cells that mated so near the same time that I could not tell the date of either. There was, however, not more than three days difference, if any. The first of these I examined to see if she was mated, and the first thing I saw was sealed drone-brood. I was just in the act of killing her, when I saw sealed worker brood. Further examination showed that she had behaved in egg production very similar to a fertile worker. Some

cells with several eggs, some none, hit and miss. Two or three cells looked as if she had dropped the eggs from the top of the cell, for they were scattered all the way down on one side and over the bottom of the cell. I closed this hive and moved to the one next to it, where I found another queen just as large, just as yellow, and I presume just as worthless as the other. Instead of killing I spared them to see what they would do in 1916. I was led to withhold judgment until I had ample proof of guilt, by an incident of 1882. I had a very yellow colony of bees to cast a swarm in September. There were several queens and I wanted to save them all, which I did. One with about a half gallon of bees settled to themselves. I hived them in empty combs. She laid so sparingly that I went to the hive the third time to kill her, but my nerve failed me. Her brood was so fine, and I, as cranky then as now, resolved to let her go over to see what she would do next year, as in this case.

The next year, to my great surprise, she proved to be the most prolific and best queen in the yard. According to the book I had been reading she ought to have been killed in '82, but kept for a breeder in '83. Remembrance of this incident induced me to keep the two bogus queens referred to.

ILLINOIS.

ANSWER.—It's a good bit like gambling to keep a queen of that kind, for while she may turn out to be a good queen the chances are against it.

Size of Hive

1. Do you think an 8-frame hive has enough room for a good queen?
2. Do you think you can get more comb and extracted honey with the 8-frame hive?
3. When you ship to a distant market do they return the shipping-cases? ILLINOIS.

ANSWERS.—1. No, there are times when some queens will keep a dozen frames well filled with brood. Not for very long, however. With such a queen you can get along very well by giving her a second story as soon as she needs it, and then reducing to one story as soon as the full harvest is on.

2. No.
3. No.

Bees in Florida

1. Do bees work the whole year in central Florida?
2. Is this State better for bees than more northern States; that is, does one get a larger flow of honey?
3. Are bees more susceptible to diseases in warm climate than cold? In looking through the Bee Journal I don't find a word about bees in Florida or any one advertising from that State. IOWA.

ANSWERS.—1. Yes and no. They may fly every week in the year, but there is much of the time when they do not work because there is nothing for them to do.

2. There are localities where fine crops of honey are secured, but on the whole no better than farther north.

3. I don't know; probably not much difference. Paralysis is much worse in the South, diarrhea in the North.

Divisible Brood-Chambers

I have always thought of trying the divisible brood-chamber hive, but there is one thing I do not understand about it. I once asked a beekeeper what he thought of it, and he answered that he considered it wrong in principle. I am unable to find anything wrong about it. It is said the small brood-chamber does not give sufficient room for the queen.

Now I absolutely failed to see why two half sized brood-chambers, one on top of the other, should not give the queen just as much room, unless it is meant that the horizontal division in the center acts as a fence or check to the queen, which she is unwilling to pass, and thus confines her to one division. I have heard of apiarists in my own State, however, who use the divisible brood hive, and are said to be very successful. TEXAS.

ANSWER.—I am uncertain whether you

want my opinion of the divisible brood chamber hive or as to the question whether a queen will go freely from one section or story of the hive to another, so it may be best to answer both. The hive with divisible brood chamber was introduced years ago by James Heddon, and patented by him. He made me a present of the right to use the hive, but I never thought enough of the hive to make me believe it worth while to try it. Yet I know that good work can be done with a hive of that kind; I merely think that on the whole there is no special value in the divisible feature. Now as to the queen going back and forth—or up and down—across the bottom-bars of the upper frames and the top-bars of the lower frames; I have used the dovetailed hive with Langstroth frames in two stories, and the queen seemed to have no difficulty in going back and forth; at least she kept a brood nest going in each of the stories, and this in spite of the fact that my top-bars are much thicker than the top-bars generally used in divisible-chamber hives. I have thus used them many times. So I do not believe that this feature offers valid objections to the system.

Which Yields the Most Honey, White or Yellow Sweet Clover?—Stingless Bees

1. Does white sweet clover yield more honey than yellow sweet clover?
2. Will sweet clover grow in the shade?
3. Are stingless bees found this far north? INDIANA.

ANSWERS.—1. I don't know, but I don't suppose there is any material difference.

2. Yes, but if too much in the shade it will not yield much nectar.

3. No; they belong in the tropics.

Two Story Hives

1. Many beekeepers place a full depth super or hive-body on top of the brood-chamber, and place part of the brood-frames, which are filled with brood and covered with bees, in the top super. These frames taken from the brood-chamber are replaced by frames with full sheets of comb foundation. This method gives the bees a great deal of room, and they often have two bodies full of frames filled with brood by the time the clover crop comes. Now if the above is practiced, and the bees have both bodies full of brood at the time the clover comes, what is done with the hive-bodies, are they left this way and supers put on the two or are they separated?

2. If empty comb is saved by putting them in an empty hive-body and a good strong colony is put over these, can these combs be taken from the bees at any time we wish to use them?

3. If the queen should go down and lay in these combs, and they would be filled with brood at the time when a new swarm comes could these combs be given to the new swarm or what would you advise doing with them?

4. In using starters in sections, is it better to use a piece $\frac{3}{8}$ inch at the top and $\frac{5}{8}$ at the bottom, or is there a better way to use starters? IOWA.

ANSWERS.—1. For extracted honey the two stories may be left or one may be taken away; for comb honey it is usual to reduce to one story.

2. Yes.

3. Yes, they can be given to a swarm, and generally it will be an advantage.

4. $\frac{5}{8}$ is all right for the bottom, but $\frac{3}{8}$ is better for the top.



Over a million stickers like the above have been sent out in two years.

American Bee Journal

Classified Department

[Advertisements in this department will be inserted at 15 cents per line, with no discounts of any kind. Notices here cannot be less than two lines. If wanted in this department, you must say so when ordering.]

BEES AND QUEENS.

FINEST Italian Queens. Send for booklet. Jay Smith, 1150 DeWolfe St., Vincennes, Ind.

PHELPS' Golden Italian Queens will please you.

TELL several thousand people what you have for sale with a few words in this department.

BEES AND QUEENS from my New Jersey apiary. J. H. M. Cook, 1Atf 70 Cortland St., New York City.

VIGOROUS Prolific Italian Queens, \$1.00 each; 6 for \$5.00. June 1st. A. V. Small, 2302 Agency Road, St. Joseph, Mo.

NORTHERN BRED ITALIANS, "Nutmeg" strain. Circular. A. W. Yates, 3 Chapman St., Hartford, Conn.

GOLDEN all-over Queens. Untested, \$1.00. Tested, \$3.00. Breeders, \$5.00 and \$10. Robert Inghram, Sycamore, Pa.

PHELPS' Golden Italian Bees are hustlers

QUEENS FROM THE PENN Co. See our large ad. elsewhere in this Journal.

WILL TRADE fine, young Italian queens for first-class brood-combs, wired, in Hoffman frames. C. S. Engle, Beeville, Texas.

FOR SALE—Leather-colored Italian bees by pound. Queens and nuclei a specialty. Write to C. H. Cobb, Belleville, Ark.

ITALIAN QUEENS and early shipments of bees by the pound from Texas. Write us for prices. R. V. & M. C. Stearns, Brady, Tex.

ITALIAN QUEENS that produce hustlers. Nuclei and pound packages. A. E. Crandall & Son, Berlin, Conn.

FOR SALE—100 colonies of bees in 8-frame Langstroth hives. Located at Dancy, Ala. Chas. C. Schneider, 2305 Gratiot Ave., Detroit, Mich.

BEE-KEEPER, let us send our catalog of hives, smokers, foundation, veils, etc. They are nice and cheap. White Mfg. Co., 4Atf Greenville, Tex.

INDIANOLA APIARY offers bees and queens for sale. Untested, 75c. Tested, \$1.25. Bees in 1-lb. packages, \$1.00; 1-frame nucleus, \$1.25. Add price of queen if wanted. J. Warren Sherman, Valdosta, Ga.

FOR SALE—Bright Italian queens at 75 cts. each; \$7.50 per dozen or \$60 per 100. Ready April 15. Safe arrival and satisfaction guaranteed. W. W. Talley, Rt. 4, Greenville, Ala.

GOLDEN QUEENS that produce Golden Workers of the brightest kind. I will challenge the world on my Golden and their honey-getting qualities. Price, \$1.00 each; Tested, \$2.00. Breeders, \$5.00 and \$10.00. 2Atf J. B. Brockwell, Barnetts, Va.

QUEENS, improved three-band Italians bred for business, June 1 to Nov. 15. Untested Queens, 75c each; dozen, \$8.00; Select, \$1.00 each; dozen, \$10. Tested Queens, \$1.25; dozen, \$12. Safe arrival and satisfaction guaranteed. H. C. Clemons, Boyd, Ky.

FOR SALE—Tested Italian Queens for \$1.00 each. In order to make room for cells in the early spring, we are offering these young tested queens for the above price, if taken by April the 15th. They were reared late last fall and are large beautiful queens. We guarantee them to give satisfaction. M. C. Berry & Co., Hayneville, Ala.

FOR SALE—Three-banded Italian queens. Nuclei a specialty. Bees by the pound. My stock will please you as it has others. Let me book your order for spring delivery. Write for circular and price list. J. L. Leath, Corinth, Miss.

AN established strain of honey gathering golden stock. Honey is what you want without much swarming. Book your orders early to save delay. One untested queen, \$1.00; 6 for \$5.00; 12 for \$9.00. Write us what you want. T. S. Hall, Talking Rock, Ga.

THREE-BANDED ITALIANS ready May and June, \$1.00 each; 6 for \$5.00; 12 for \$9.00; after June, 75c each; 6 for \$4.25; 12 for \$8.00. For larger lots write Curd Walker, Jellico, Tenn.

FOR SALE—Golden Italian Queens and Nuclei about June 1st. Send for price list. J. I. Danielson, Fairfield, Iowa.

BEES by the pound a specialty. Swarms of young bees shipped anywhere in the U. S. or Canada and safe arrival and satisfaction are guaranteed. Largest shippers in the South. Capacity 100-lb. swarms a day. Write for free circular and price list. M. C. Berry & Co., Hayneville, Ala.

QUEENS from my honey-gathering strains will be ready to ship April 1st. In honey-getting qualities they have few equals. See my advertisement elsewhere in this Journal. D. E. Brothers, Attalla, Ala.

FOR SALE—Golden Italian queens about the first of May. Untested, 70c; \$8.00 dozen. Select untested, 80c; \$9.00 doz. Tested, \$1.00. Select tested, \$1.25. No foulbrood in my apiary. D. T. Gaster, Rt. 2, Randleman, N. C.

FOR SALE—Northern-bred Italian queens. Untested, \$1.00. Sel. tested, \$1.50. Bees by lb. Some best plans for beginners. "How to Introduce Queens and Increase," 25c. List free. E. E. Mott, Glenwood, Mich.

GOLDENS—California Goldens, 60c each. Alameda Apiaries, W. A. Barstow, Breeder, 1042 Alameda Ave., West San Jose, Calif.

HAVING secured breeders of Dr. Miller, we are offering daughters of his famous strain of Italians at the low price of \$1.50 each. Queens of our own strain at 75c each. One pound bees, \$1.50; 2-frame nuclei, \$2.25. Full colony in 8-frame hive at \$6.50; 10-frame, \$7.50; 200 colonies for spring delivery at \$6.00 each, 10-fr. hives. The Stover Apiaries, Mayhew, Miss.

FOR SALE—Good Italian queens, untested, 75c; tested, \$1.00; nuclei, 2-frame, \$3.00; 1-lb. package, \$2.00; 2-lb. package, \$3.00. Untested queen with bees at above prices. Will begin to send about April 1st. G. W. Moon, 1004 Park Ave., Little Rock, Ark.

FOR SALE—Bright Italian queens this season, 75c each; \$8.00 per dozen. Safe arrival and satisfaction guaranteed. T. J. Talley, Rt. 3, Greenville, Ala.

MY BRIGHT Italian queens will be ready to ship after April 1st at 60c each. Send for price list. Safe arrival and satisfaction guaranteed. M. Bates, Rt. 4, Greenville, Ala.

UNTESTED QUEENS of my business bees, \$1.00 each—great honey getters, gentle. Ready March 1st. Disease unknown here. Write me and I will tell you how to make money buying my queens. Fully guaranteed. M. F. Perry, Bradentown, Fla.

GOLDEN and 3-banded Italian and Carniolan queens, ready to ship after April 1st. Tested, \$1.00; 3 to 6, 95c each; 6 to 12 or more, 90c each. Untested, 75c each; 3 to 6, 70c each; 6 or more, 65c. Bees, per lb., \$1.50; Nuclei, per frame, \$1.50. C. B. Bankston, Buffalo, Leon Co., Tex.

BEES AND QUEENS—Doolittle's Italian stock speaks for itself. They are gentle, resist disease, and are fine honey gatherers. We breed this stock only. Untested queens 75c each; \$8.00 per dozen; \$60 per hundred. Tested queens, \$1.25 each; \$12 per dozen; \$85 per hundred. Three frame nuclei, \$2.25 each; \$200 per hundred. Bees 1/2-lb. pkgs., 75c each; \$60 per hundred; 1-lb. pkgs., \$1.00 each, \$85 per hundred. Add price of queens to above pkgs. Complete catalog free on application. Spencer Apiaries Co., Nordhoff, Calif.

ITALIAN QUEENS, prompt service; queens mailed to purchaser in new style of introducing cage that is safe and sure. Bees from a one-frame nucleus to a carload. Write for price list on colonies, queens and nuclei. J. F. Diemer, Rt. 3, Liberty, Mo.

IF YOU wish to get early queens and comb-less packages place your orders early, with the Marchant Bros., Sumatra, Fla. After March 15th our address will be Fitzpatrick, Ala. See our ad elsewhere in this Journal.

PHELPS' Golden Italian Queens combine the qualities you want. They are great honey gatherers, beautiful and gentle. Mated, \$1.00; six, \$5.00; Tested, \$3.00; Breeders, \$5.00 and \$10. C. W. Phelps & Son, 3 Wilcox St., Binghamton, N. Y.

PLACE your order early to insure prompt service. Tested, \$1.25; untested, \$1.00. Italians and Goldens. John W. Pharr, Berclair, Tex.

QUEENS—EARLY QUEENS, GOLDEN OR LEATHER-COLORED ITALIANS, one select untested, \$1.00; 6, \$4.25; 12, \$8.00. Tested, \$1.25. Best breeder, \$5.00. **EARLY SWARMS OF YOUNG BEES** in light screen cage a specialty. One 1-lb. package, \$1.25; one 2-lb., \$2.25, queen extra. For ten or more write for price; also nuclei and full colonies. Orders booked now for bees and queens, both ready for delivery March 15 and after. Safe arrival, prompt service and satisfaction guaranteed. Circular free. J. E. Wing, 155 Schiele Ave., San Jose, Calif.

CARNIOLAN, Golden and Three-Banded Italian queens from April to October. Tested, \$1.00 each; 6, \$5.40; 12, \$10.20. Select tested \$1.25 each; 12, \$13.80. Untested, 75c each; 6, \$4.20; 12, \$7.80. Select untested, 85c each; 6, \$4.80; 12, \$9.00. Breeders, \$3.00 to \$5.00. Virgins, 50c each; 6, \$2.50; 12, \$4.00. Bees, 1-lb., \$1.25; 2-lb., \$2.25; 1/2 lb., 75c. Nuclei, 1 frame, \$1.25; 2 frames, \$2.25; 3 fr., \$3.00. Full colonies with tested queens, 8 fr., \$6.50; 10 frame, \$7.00. No disease, safe delivery and satisfaction guaranteed. Money must accompany the order. Write for price list. I. N. Bankston, Buffalo, Tex.

HONEY AND BEESWAX

WANTED—Comb, extracted honey, and beeswax. R. A. Burnett & Co., 6Atf 173 S. Water St., Chicago, Ill.

BEST flavor alfalfa sweet clover honey at a very reasonable price. Ask for delivered price on 2 60-lb. cans or more. Wesley Foster, Boulder, Colo.

FOR SALE—Honey-Dew Honey (for baking or bee food), 5c by case; 10 cases, 4 1/2c; 25 cases, 4c per pound; 2 60-lb. cans to case; also some fall comb honey, \$2.50 per case of 24 sections. H. G. Quirin, Bellevue, Ohio.

FOR SALE—Extra good light amber mesquite and alfalfa honey. Two 60-pound cans to case, 5c a pound; 5 and 10 pound friction-top pails, 8c per pound per hundred weight. Cash with order on board of cars here. B. A. Hadsell, Buckeye, Ariz.

FOR SALE—Car honey, half extra fine comb, half extracted, alfalfa, or car extracted. Small lots at \$8.00 per case of two 5 gal. cans; case of six, 10 lb. pails, \$5.00; 12, 5 lb. pails, \$5.40. All f. o. b. here. E. F. Atwater Co., Meridian, Idaho.

FOR SALE—10,000 pounds amber honey in 60-lb. cans or friction-top pails. Best quality; prices right; sample. E. S. Miller, Valparaiso, Ind.

FOR SALE—Water-white alfalfa, white clover, amber alfalfa, and amber fall honey in 60-lb. cans or smaller packages. Amber fall honey is of our own extracting, and can also be furnished in barrels. Write for sample of kind desired and state quantity you can use. Dadant & Sons, Hamilton, Ill.

FOR SALE

FOR SALE—Friction-top pails, 5-lb. size, per 100, \$1.50; 500, \$21.25; 10-lb. size per 100, \$6.25; 500, \$30. Low prices on other sizes in bulk. Also furnished in re-shipping cases. Shipped from Chicago. A. G. Woodman Co., Grand Rapids, Mich.

American Bee Journal

FOR SALE—200 colonies of bees, 5 acres of land. N. L. Anderson, Spearfish, S. Dak.

FOR SALE or to let on shares 250 well kept colonies, in irrigated alfalfa region (Kansas); season 1914 averaged 110 pounds. Address, C. O. Davison, Presby. Hosp., Pittsburg, Pa.

FOR SALE—Select bred three-banded Italian queens and bees. After 20 years of select breeding we have a strain of bees that for hustle, hardiness and honey gathering qualities are unexcelled. Write for free circular and price list. M. C. Berry & Co., Hayneville, Ala.

FOR SALE—170 colonies of bees equipped for extracting in 2 apiaries one mile apart, in an alfalfa belt three miles from Fallon, Nev., in the heart of the Carson-Truckee U. S. Government Reclamation project. For particulars, address Gillman H. Wright, R. F. D. No. 1, Fallon, Nev.

FOR SALE—173 acres in Musselshell Co., Mont., 50 acres river bottom, house, barn, ice house, hen house, honey house, garage, hog house, and tool house. All new frame buildings, fenced, 50 acres in alfalfa. \$5000, \$4000 cash, balance on time. Apiary of 50 colonies, and all equipment for conducting an up-to-date apiary. Will sell apiary at your own price, if taken with farm. One mile from town and R. R. depot. Address, Meadow Glen Apiary, Carpenter Creek, Mont.

FOR SALE—35 colonies pure Italian bees with select tested queens of J. P. Moore strain, \$4.50 per colony; 35 colonies with mismatched queens from same strain, \$4.00 per col.; 35 cols. light colored hybrids from the same strain with queens, \$3.50 per col., all in 8-frame bodies in good winter cases, mostly the Quinby standard, full depth self-spacing Hoffman frames, 8 to each hive, all combs straight, and all strong and healthy with plenty of honey, f. o. b. here. Wilmer Clarke, Box 200, Earlville, Weed Co., N. Y.

SITUATIONS.

WANTED—A young man to help with bees and garden. A chance to learn queen-rearing. A. V. Small, 2302 Agency Road, St. Joseph, Mo.

WANTED—Industrious man of good habits to help care for apiary and fruit farm for 1916. Salary, share or will sell—75 colonies T. K. Rea, Pottsville, Tex.

WANTED—A position to work with fruit, garden or farm work. Will help with bees. Age 18. Paul Coyner, Merom, Ind.

LADY of 32 wants to learn apiculture and help with poultry. Services for board. Musician, good companion for old couple or children. References exchanged. Address, Miss M., care Am. Bee Journal.

HONEY LABELS

HONEY LABELS that create a favorable impression on the buyer. Dealers admire them and give them prominence. Catalog Free. Liberty Pub. Co., Sta. D, Box 4H, Cleveland, O.

SUPPLIES.

HOFFMAN self spacing frames in flat, 100. \$3.00; 500, \$13.75; 10.0, \$27. Sivelevetts Frame Works, Whitneyville, Ct.

FOR SALE—Cedar or pine dovetailed hives, also full line of supplies including Dadant's foundation. Write for catalog. A. E. Burdick, Sunnyside, Wash.

DO YOU want the best foundation faster? Then buy "The Pangburn" mfg. by W. S. Pangburn, Center Junction, Iowa.

COMB FOUNDATION—You can have your beeswax made into best quality foundation. Also the wax from old combs or "slumgum." We get it all out. On shares or very cheap for cash; new factory; old liberal terms; cheapest and handiest transportation for all northern beekeepers. You always get your own wax back. J. J. Angus, 434 Fulton St., Grand Haven, Mich.

GOOD second hand 60-pound cans, 25c per case of two cans f. o. b. Cincinnati; terms cash. C. H. W. Weber & Co., Cincinnati, O.

BEEKEEPERS' SUPPLIES sold at a reduction. New prices now ready. Send for list free. W. D. Soper, Jackson, Mich.

NOTICE—Beekeepers when in need of supplies write us for prices. We can save you money. We make a specialty of odd sized hives. The M. C. Silsbee Co., Cohocton, Rt. 3, N. Y.

MISCELLANEOUS

FOR SALE—Barnes' saw, heavy iron frame 1 1/4 inch maple top, complete; \$10 a bargain. M. D. Smith, Preston, Iowa.

FOR SALE—Two fr. No. 5 Novice Root's extractor, wax press and uncapping can, both new. Joe Nafziger, Goodland, Ind.

FOR SALE—California little suburban farms, suitable for poultry, fruit and garden. Terms, write E. R. Waite, Shawnee, Okla.

A LITTLE ad in our classified columns will sell that perfectly good equipment that you no longer need. Only 15 cents per line each insertion.

FOR SALE—Use cuts in advertising your queens, honey or bees. We are prepared to furnish cuts for use in beekeepers' advertising at low rates. Let us quote prices on what you need. American Bee Journal, Hamilton, Ill.

FOR SALE—A fine farm in Florida, 10 or 20 acres, 2 acre orange grove, also apiary. Fifteen minutes walk from railroad depot. Write for particulars. Chas. Mack, Mannville, Putnam Co., Fla.

HONEY AND BEESWAX

CHICAGO, Feb. 16.—During the last few days there has been more movement in honey than for some weeks past, which, of course, is usual at this time of the year; prices, however, are weak. Best grades of white comb honey are selling at about 15c per pound with the amber and off colors at from 1c to 3c per pound less. Extracted white at 70c per pound, according to the kind and quality. Amber grades range at from 60c per pound. Beeswax steady at 30c per pound, R. A. BURNETT & Co.

KANSAS CITY, Mo., Feb. 18.—The supply of comb honey is not large and the demand is light. The supply of extracted is large and the demand very light. The market is really overstocked. We quote as follows: No. 1 white comb, 24 sections per case, \$3.00. No. 2 white comb, \$2.75. No. 1 amber, \$2.75 to \$3.00. No. 2, \$2.50 to \$2.75. No. 1, white extracted, per pound, 7 1/2c; amber, 6 1/2c. No. 1 beeswax, per pound, 28c; No. 2 25c. C. C. CLEMONS PRODUCE COMPANY.

DENVER, Feb. 19.—Local demand for comb honey light with ample supply. We are selling in a jobbing way as follows: Fancy white, per case of 24 sections, \$3.15; No. 1, per case, \$2.93; No. 2, per case, \$2.70. White extracted, per pound, 8 1/2c; light amber, 8 1/2c; amber, 7 1/2c. We pay 25c per pound in cash and 27c per pound in trade for clean yellow beeswax delivered to us here at Denver.

THE COLO. HONEY-PRODUCERS' ASS'N. Frank Rauchfuss, Mgr.

LOS ANGELES, Feb. 18.—Extracted honey, water-white sage, 7 1/2c; white sage, 7c; light amber sage, 6 1/2c; light amber alfalfa, 4 1/2c. In carload lots f. o. b. Coast. Comb honey, fancy white, \$2.75 per case. Stocks of all kinds of honey are fairly well cleaned up. HAMILTON & MENDERSON.

CINCINNATI, Feb. 17.—Very little honey selling at present. We quote No. 1 comb at \$3.75 to \$4.00; No. 2 at \$3.50 to \$3.75. White clover extracted in cans, 70c; amber in barrels, 5 1/2c, according to quantity and quality. For choice bright yellow beeswax we are paying 28c a pound delivered. THE FRED W. MUTH CO.

FOR SALE—A good bee location; 40 acres with good house and barn; also 30 colonies of bees with fixtures. Located in the central part of Wisconsin. For further information write to Geo. Delano, Royalton, Waupaca Co., Wis.

WANTED—100 drawn brood combs, Hoffman frames, well wired, not too old, and free from disease. Quote your lowest price. Willis N. Zeitler, Phillipsburg, Pa.

FREE FOR SIX MONTHS—My SPECIAL offer to introduce my magazine, "INVESTING FOR PROFIT." It is worth \$10 a copy to anyone who has been getting poorer while the rich, richer. It demonstrates the REAL earning power of money, and shows how any one, no matter how poor, CAN acquire riches. INVESTING FOR PROFIT is the only progressive financial journal published. It shows how \$100 grows to \$2200. Write NOW and I'll send it six months free. H. L. Barber, 546-20 W. Jackson Blvd., Chicago, Ill.

POULTRY

IF YOU breed fancy poultry, offer your surplus stock or eggs for sale in our classified columns.

WHITE LEGHORNS that lay Barron strain Eggs for hatching from high record hens. Will exchange eggs for nuclei of bees. Sidney Johnson, Boynton, Va.

RHODE ISLAND REDS—Both Combs. High grade; carefully bred; none better. Prices reasonable. Stock and eggs, by setting or hundred lots. Mating list free. Fred Oertel, Box 24, Brighton, Ill.

POULTRY PAPER, 44-124 page periodical, up to date, tells all you want to know about care and management of poultry for pleasure or profit; four months for 10 cents. Poultry Advocate, Dept. 230, Syracuse, N. Y.

NEW YORK, Feb. 18.—The market on comb honey is practically at a standstill at present, and of late the demand has been next to nothing, there being some little demand, however, for 1-pound and fancy white, but there is no demand for off grades whatever. Our stock is not heavy, but it is more than sufficient to fill the present demand. We have letters coming in right along from producers asking what we can get for comb honey, and we write them that the season is practically over, we would not feel justified in stocking up. As to extracted, the market is in pretty good shape with a fair demand. There seems to be plenty of supply of all kinds, with the possible exception of California water-white sage, but we would not encourage shipments without first writing us.

We quote nominal: California, 6 1/2c, according to quality; clover and basswood, 7 1/2c; off grades amber and light amber, 6 1/2c; buckwheat, 6 1/2c; West Indian, 55c-65c per gallon, according to quality.

Beeswax is in fair demand from 20c to 30c. HILDRETH & SEGELKEN.

Productive Bee-Keeping—

The best methods for producing honey, under the greatest variety of conditions, have been studied, sifted and excellently arranged in this thorough, scientific, yet practical volume by Frank C. Pellett, Iowa State Apiarist. From the first page to the last bee-keeping is treated as a business, or as a money-making side line in which almost every farmer should engage. There is a chapter on wax as a by-product, a chapter upon marketing the honey, with twentieth century information upon advertising. Diseases and methods of prevention and care are given a chapter that probably will mean big money saved for every bee-man. There are 134 illustrations and 316 pages. It is a splendid work. Price, \$1.50 net, or with the American Bee Journal, one year, only \$2.00.

Notice to Northern Beekeepers!

WE are making a specialty of the pound package trade, and will ship from our yards at Fitzpatrick and other points in Alabama, packages and queens during April and May at the following prices: One pound with queen, \$2.00; without queen, \$1.25. Two pounds with queen, \$2.90; without queen, \$2.15. Three pounds with queen, \$3.80; without queen, \$3.00. Untested queens, single, \$1.00; six for \$4.50; dozen for \$8.50; in lots of 50 or more, 60c each. Select tested, \$2.00. Breeders, \$3.50. A special price quoted on packages of 50 or more and 5 percent discount on all orders by March 15th. We have improved on pound package, making it larger, lighter and giving more ventilation.

Our vast experience with the Root Company, and our father, A. B. Marchant, enables us to know what the trade wants and needs, and we are well equipped to take care of any and all orders regardless of size. Our aim is to carry surplus so as to be enabled to fill all orders by return mail and on the day they fall due. Our stock is of the three-band Italian, and has stood the test for 20 years. **There is none better.** We have sold the A. I. Root Company two cars of bees and several hundred queens, and will sell again this season.

We guarantee safe arrival, freedom from disease, pure mating, no inbreeding, and your money refunded if not satisfied.

References: The American Exchange Bank of Apalachicola, Fla.; also The A. I. Root Company. Insure yourself against loss by placing your orders with

The Marchant Bros.,

Sumatra, Florida

AFTER MARCH 15, OUR ADDRESS WILL BE FITZPATRICK, ALABAMA

**Bee
book
free**

YOUR SUCCESS IN BEEKEEPING DEPENDS ON THE KIND OF BEES YOU KEEP AND HOW YOU HANDLE THEM

Blanke's 68 page book is not merely a catalog; it is an authoritative expert guide on the kind of apiary supplies that successful beekeepers have proved to be profitable in actual use. Blanke carries the largest stock of bee supplies west of the Mississippi, and can make prompt delivery. Every article carried is perfect fitting. Whether you're a beginner or an expert beekeeper you ought to get the Blanke Bee Book—send for it today.

Fine Poultry Book Also Free

If you keep poultry, too, ask us for illustrated poultry book; full of valuable pointers on poultry raising, as well as a catalog of profitable poultry supplies.

BLANKE MFG. & SUPPLY CO., PIONEERS IN BEE, POULTRY, AND DAIRY SUPPLIES, 209 WASHINGTON, AVE., ST. LOUIS, MO.

AN AUTOMATIC FOOT SCRAPER

Give Your Wife a Surprise

When a fellow comes in from the barn on one of those wet days when most of the farm sticks to his shoes, it is almost impossible to get them clean with an ordinary scraper. Surprise your wife by placing an **Automatic Foot Scraper** at the back door. Mud, snow, dust and dirt will not be tracked over your floors if you use

GRAB'S FOOT SCRAPER

outside your door. The only device made which cleans bottoms and sides of shoe in one operation. Has ten parallel plates for scraping soles and two stiff bristle brushes which cleans sides of shoe.

AUTOMATICALLY ADJUSTS ITSELF

to any size shoe. Handsomely enameled. Looks neat. Can be rotated and swept under. Fastens to doorstep or any handy place. Get one and save yourself useless work. **Price, \$1.00.**

We offer the Bee Journal one year with foot scraper; both only \$1.50

AMERICAN BEE JOURNAL, HAMILTON, ILLINOIS

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**With fine Alfalfa, Clover or
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We can supply you in packages to suit your trade. Any Quantity.

Also a limited amount of nice comb honey for sale. *Write us now.*

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ITALIAN QUEENS

THREE-BANDED

Ready April 1, of an exceptionally vigorous and long-lived strain of bees. They are gentle, prolific, and the best of honey gatherers. Untested, \$1.00; 3, \$2.75; 6, \$5.00; 12, \$9.00. Tested, \$1.25; 6, \$6.50; 12, \$12.50. Send for my free circular and price list, and see the natural conditions under which my queens are reared. Will book orders now.



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723 C Street, Corpus Christi, Texas

BEE SUPPLIES

of all kinds; low prices. Discount for early orders. Catalog free.

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WE ARE READY

To figure on your wants. Send us a list of goods and we shall be pleased to quote you the very lowest price for the best goods. Established 1899. Our catalog may interest you.

H. S. DUBY & SON, St. Anne, Ill

THE QUEEN OF ALL QUEENS



Is the Texas Queens. Send me your orders early for Italian and Carniolan. Queens, \$8.00 per doz. Bees per pound, \$1.50.

CIRCULAR FREE

Grant Anderson, Rio Hondo, Texas

OUR TEXAS BEES

Having locations where I can rear bees almost the year around. I am prepared to furnish you the very best stock of bees and queens at prices where you can afford to buy and build up those weak colonies for the honey season. My pound packages are fine for making increase at a reasonable price. One pound package, \$1.50; 2-pound packages, \$2.50; 10-pound lots, \$13; 100 pounds for \$120. Queens shipped with pound packages at 75 cents each. By mail at \$1.00 per dozen. Special prices to dealers in large lots.

WM. ATCHLEY, Mathis, Texas
"The Texas Beeman"

Scientific Queen Rearing.—This is practically the only complete book on queen rearing now in print. It is looked upon by many as the foundation of modern methods of rearing queens in a wholesale way. G. M. Doolittle, its author, has an entertaining way of writing on bee subjects which helps his readers to follow him with pleasure even if they never intend to rear queens at all. He describes just how the best queen can be reared in nature's way. Cloth bound, 124 pages, 75 cents, postpaid. There is also a leatherette-bound edition of the same book which retails at 50 cents, or with the American Bee Journal, both for \$1.00.

Secure These Rare Plants—Free



The wonderful Progressive Everbearing Strawberry Plants are becoming immensely popular. No wonder! You set them out in May and enjoy fine berries during the following summer and fall. No long wait for this crop!

Progressive Everbearing Strawberries take the risk out of Strawberry growing, too. The plants are much hardier than the common varieties. Ordinary spring frosts will not hurt them. Even if a heavy freeze does kill the early spring bloom, in 30 days they will bloom again. Through a special contract with a grower of National reputation, The Farming Business is able to furnish to you **FREE**, these wonderful

Progressive Everbearing Strawberry Plants

or, if you prefer, Fall-bearing Strawberry Seeds—the true hybridized sort, and also plants of the ever-popular Chesapeake variety. All strains are pure. The Progressive plants will actually grow and fruit as described. A test patch of a square rod was set in May, 1914. Just 83 days after, the owner began gathering a fine crop, which continued till late October, aggregating 74¾ quarts. The great Chesapeake variety needs no introduction. The Fall-bearing Seeds afford a most interesting way to grow Strawberries.

These plants and seeds are scarce this year, and prices will be high, where they are obtainable at all. Act now and insure yours.

Our Plan

No. 1—Send \$1 (stamps accepted) for The Farming Business—one year—52 big issues—and we will send in addition 12 healthy Progressive Everbearing Strawberry Plants, this spring just at the right time to set. Postage prepaid.

No. 2—Send one yearly subscription to The Farming Business together with \$1 (stamps accepted), and in addition to the paper we will mail you one packet of true hybridized Fall-bearing Strawberry Seeds. This will give you about 500 plants.

No. 3—Send \$2 (stamps accepted) for The Farming Business—2 years, 104 big issues—and we will send in addition 12 Progressive plants and also 25 plants of the popular Chesapeake variety.

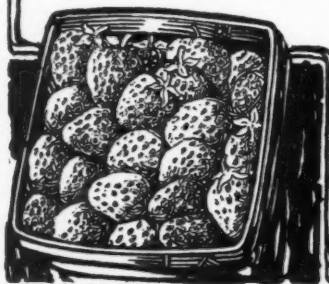
You need the Farming Business in your home. It is practical, helpful, progressive, cheery. A great paper for the busy farmer and the entire family.

The Vegetable Growers Magazine Section alone is worth the subscription price. It will pay you to accept one of our liberal offers. If already a subscriber your paper will be continued for an extra year—or two. Accept today to make sure of your free berry plants or seeds.

The Farming Business

Dept. Q

500 N. Dearborn Street Chicago, Ill.



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Langstroth on the Hive and Honey Bee

This book is very interesting when read in connection with the Revised Langstroth. Many are surprised at the number of devices mentioned by Langstroth years ago, which are re-written as new today. We offer the old reprint at a special postpaid price of \$1.00.

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All three above for \$2.50

American Bee Journal, Hamilton, Illinois.

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Peter Kilpatrick, Nazareth, Pa., writes "Have made better hatches than anyone here." Strongest, most durable Incubator made. Hot water heat—double wall—dead air space— asbestos lining—self regulator—metal cover. Will not warp or shrink. Money cannot buy a better Incubator.



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Why pay more? A bigger, better, simpler machine at no increase in price. A proven cold weather hatcher. Built on U. S. Gov't. specifications. Write today sure for Free Catalog, or order direct from this ad and save time. You take no risk. Satisfaction guaranteed or money refunded. Comes set up ready to run, with egg tester and book of instructions. Don't delay. Get the facts at once.

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Have Made Good—"There's a Reason"—

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GREY CAUCASIANS

The mountain bee of Mt. Caucasus is vigorous, hardy, very resistant, and exceedingly gentle. Bred in the light of Mendel's Laws of Heredity, good qualities are accentuated. The pioneer scientific queen-rearing establishment of America. We lead; others may follow. Extreme care is taken in the selection of drones from special queen-mothers—results are obvious. Apiary absolutely clean; disease unknown.

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CULTIVATE HORSE-RADISH GARDEN, FIELD OR FARM

Increasing Demand—Large Profits
100 Root Sets with full information \$1.00

Write for list of our \$1.00 Friend Makers, consisting of all kinds of Fruit Trees, Berries and Roses. Honey accepted in payment for all of our products.

VALLEY FARM CO., NEWBURGH, N. Y.

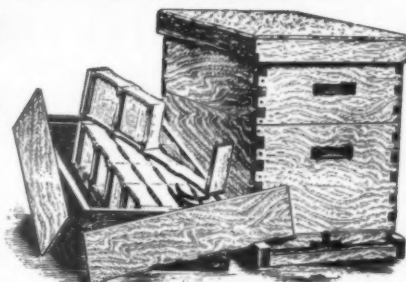
**Furnished in the clearest of lumber in either Cypress,
White Pine or Redwood. All Brood and Extracting
Frames Made from White Pine**

Admits fresh air into the hive, lessening the chance for swarming, and giving renewed energy to the bees. It is also equipped with a feeder without extra cost.

Fifty years in the bee supply business has shown us that the **Massie is the very best hive**, and testimonials to this effect are received daily from those who are using this hive.



THE MASSIE HIVE



The Dovetailed Hive for Comb Honey

SATISFACTION FULLY GUARANTEED

EARLY CASH ORDER DISCOUNTS

We are also extensive manufacturers of **Dovetailed Hives and all other Apiarian Supplies**. If you are in the market for supplies be sure to get our prices before buying elsewhere. We will mail our large illustrated catalog and **special price list** to any one upon request.

KRETCHMER MFG. COMPANY, 1100 3d St.,

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You are always safe in buying Murry's bees and queens. Unexcelled for prolificness, gentleness and honey-gathering qualities. No disease. Health certificate with each shipment of bees and queens, Three-banded Italians, Goldenes. Tested queens any time. Untested after March 25th.

Queens	March 1st to May 1st			May 1st to Nov. 1st		
	1	6	12	1	6	12
Untested.....	\$1.00	\$ 5.50	\$10.00	\$.75	\$4.00	\$ 7.50
Tested.....	1.25	6.50	12.00	1.25	6.50	12.00
Select tested.....	2.00	10.00	18.00	1.50	8.00	15.00

Bees by the pound after May 10th. Safe arrival guaranteed to any point within six days of Mathis, Tex. Large orders must be placed 30 days in advance of shipment, accompanied by 25 percent advance payment. This means orders amounting to \$50 and up.

Pound packages	1	12	50	100
1-pound package.....	\$1.50	\$16.00	\$ 65.00	\$127.00
2 " " 	2.50	29.50	116.50	330.00
3 " " 	3.75	44.75	117.50	352.50

There is no better way for the beginner to start with bees than with the old-fashioned nucleus. I make a specialty of shipping nuclei.

1-frame nucleus without queen.....	\$1.50
2-frame.....	2.50
3-frame.....	3.50

Any number wanted at these prices. No queens included with bees by the pound or nuclei. If queens are wanted, add price of queen to price of nucleus or pound package.

H. D. MURRY, MATHIS, TEXAS

Get our "Scarified," sweet clover seed which will germinate from 85 to 95 percent the first year and thus insure you a good stand right from the start. By sowing our seed you will save money, as it only takes about half as much scarified to sow an acre as ordinary hulled seed.

PRICES

	1 lb.	10 lbs.	30 lbs.	100 lbs.	Per bu 60 lbs.	5 bu. lots per bu.	10 bu. lots per bu.	Lbs. per acre
Unhulled White Sweet Clover Recleaned	25C	\$2.00	\$5.10	\$16.00		\$ 4.80	\$ 4.50	25 to 30
Hulled White Sweet Clover recleaned and scarified	30C	2.75	6.75	22.50	\$13.50	13.00	12.50	6 to 10
Hulled Yellow Sweet Clover, recleaned and scarified "Melilotus Officinalis"	20C	1.80	5.10	17.00	10.20	9.50	9.00	8 to 12

When seed is wanted by parcel post, be sure to include postage. Bags will be included in the weight in parcel post shipments.

PLEASE NOTE—All of our seed is thoroughly cleaned. The scarifying process usually breaks some of the seeds and we remove all broken seeds. This is an important saving to you. Samples on application.

YELLOW SWEET CLOVER—Many people fail to recognize the value of the biennial yellow sweet clover as a honey plant. The fact that it blooms two weeks earlier than the white variety makes it especially valuable to the beekeeper.

Be sure, however, to get the biennial variety as quoted above.

DADANT & SONS, HAMILTON, ILLINOIS

FROM THE COTTON-BELT APIARIES

Will and **must** please you. Three-band Italians only. Prices from May 1st to July 1st as follows: Queens, untested, 75¢ each; \$1.00 for sex; \$1.50 per dozen. Tested \$1.00 each; \$1.50 for sex; \$2.00 per dozen. Select tested, \$2.50 each. Breeding queens, \$5.00 each. One pound package bees, \$1.25; 25 packages, \$1.00 each; 2 pound package, \$2.25 each; 25 packages, \$2.00 each; 3-pound package, \$3.25 each; 25 packages, \$2.75 each.

Special prices on larger quantities booked early. Twenty years experience. No disease. 75 percent of untested queens guaranteed purely mated. Safe arrival and reasonable satisfaction guaranteed.

THE COTTON-BELT APIARIES

Box 83, Roxton, Texas

My queens are bred from imported mothers. They are the best for honey gathering and gentleness. Not inclined to swarm.

		April 1 to July 1		
Prices		1	6	12
Untested	-	\$.75	\$4.25	\$ 8.00
Select untested		.90	5.00	9.00
Tested	-	1.25	7.00	13.00

Safe arrival and pure mating guaranteed

L. L. FOREHAND
Ft. Deposit, Alabama

Queens from my honey gathering strains of three bands and goldens at the following low prices: Un-tested, one, \$1.00; 6, \$5.00; 12, \$9.00; 25, \$17.50; 50, \$32; 100, \$60. Tested queens, 1, \$1.50; 6, \$8.00; 12, \$15. Nuclei or lb. packages, 1-fr. with untested queen, \$2.50; 6, \$14; 12, \$26; 2-fr., 1, \$3.50; 6, \$18; 12, \$34. If tested queens are wanted add price as above

D. E. BROTHERS
Attalla, Ala.

WESTERN BEE-KEEPERS can save money and get the best goods obtainable, especially made to meet Western condition. Send for new catalog and special price list to

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Substitutes by Talk

THE PROOF?—2 LETTERS FROM BEEMEN:



"Our correspondent makes serious complaints against.....and MAKES A PLEA FOR CYPRESS as a BEEHIVE MATERIAL. We hope you will look into this matter." (Etc.)— and here's another:

"Mr. ———, of ———, just came into the office. He informs us that they tried a car of CYPRESS LUMBER last year for the first time, and are so well pleased with it that they are ORDERING ANOTHER CAR for use in making HIVE-BOTTOMS."

Is there value to you in an endurance test of 45 years in greenhouse sash? It is reported to us that sash made of heart Cypress by a prominent greenhouse contractor in Chicago, and placed in position in a greenhouse at Des Plaines, Ill., in 1868 are STILL DOING SERVICE.

IT WILL SERVE YOU AS WELL and save you the nuisance and expense of repairs and replacements.

The argument backed by such facts cannot be answered by mere talk. Ask the manufacturer or contractor who wants to give you a "substitute" for Cypress to cite you to an endurance test of 30 or 45 years to the credit of the so-called "substitute."

That is no more than a fair precaution on your part—good ordinary business sense.

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Send us a list of the bee-supplies and foundation you will need for 1916, and we will gladly quote you our best prices.

It will pay you to buy early.

BEESWAX— We buy beeswax the year around and pay highest cash and trade prices. Light yellow wax from cappings is especially wanted. Your **BEESWAX** worked into foundation at moderate rates.

NOTE Old combs, cappings, and slumgum rendered on shares. Send for our terms. We will get all the wax and save you a "mussy" job.

DADANT & SONS,
HAMILTON, ILLINOIS.

MARSHFIELD GOODS

BEE KEEPERS:—

We manufacture Millions of **Sections** every year that are as good as the best. The **CHEAPEST** for the Quality; **BEST** for the Price. If you buy them once, you will buy again.

We also manufacture **Hives, Brood-Frames, Section-Holders and Shipping-Cases.**

Our Catalog is free for the asking.

Marshfield Mfg. Co.,

Marshfield, Wis.



EARLY ORDER DISCOUNTS WILL

Pay You to Buy Bee Supplies Now

Thirty years' experience in making everything for the beekeeper. A large factory specially equipped for the purpose ensures goods of highest quality. Write for our illustrated catalog today.

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START THE SEASON RIGHT

By using **Dittmer Foundation** the bees like it for it's made to just suit them, and is just like the Natural Comb they make themselves.

Send for prices on having your Beeswax made into Comb Foundation, which includes all freight charges being paid.

All other Supplies in stock

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PORTER BEE ESCAPE SAVES HONEY TIME MONEY



For sale by all dealers.
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Please mention Am. Bee Journal when writing

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Best prices you will get for your honey when put up in our sections and shipping cases. "LOTZ" sections and shipping cases have stood the test. Why? Because they are perfect in workmanship, quality and material. Buy LOTZ goods when you want the BEST. Our 1915 catalog ready now. Send your name and get one.
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Low Prices on tin cans, especially the Friction-Top style. We buy in carlots and can save you money

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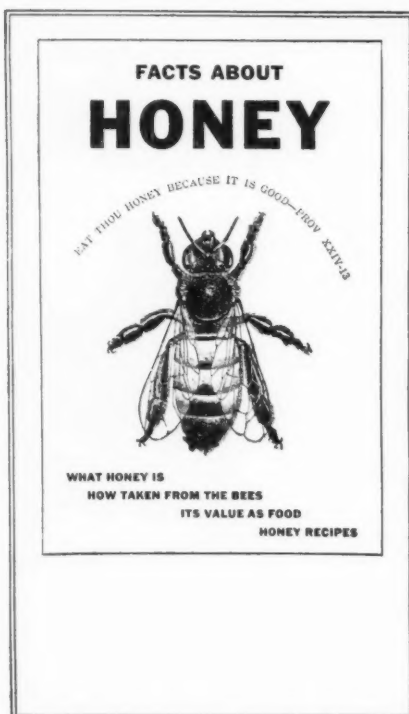
FIELD SEEDS

Full line including seed corn. Write for price lists.

F. A. SNELL
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Quinby's New Beekeeping, by L. C. Root.—This is a modern edition of "Quinby's Mysteries." Mr. Quinby is well known to all beekeepers. He, with Mr. Langstroth, was responsible for much of the early growth in beekeeping in America. Cloth bound, 220 pages. Price, postpaid, \$1.00, or with the American Bee Journal for one year, \$1.75.

FACTS ABOUT HONEY



THE editorial on the "Food Value of Honey," on page 404, of the December number of this Journal was so highly appreciated, and so many enquiries came for a reproduction of it in pamphlet form that we have prepared a 16-page booklet for advertising honey containing this and other matter of importance which the consumers ought to know. Size of booklet 5 3-4x9 inches. Weight a scant ounce.

"Facts about Honey" contains the following information illustrated with 17 splendid half tones: What honey is and where gathered; Principal kinds of honey; Different flavors and colors; How produced; Bee-trees and bee hunting; Bees in boxes and gums; The new way of honey production; Movable-frame hives and sections; Comb honey; Comb foundation; Why the bees build straight in the section; Chunk honey; Extracted honey, the honey extractor and manner of extracting; Purity of honey; Granulation of honey, how to melt it; Food value of honey; Is honey a luxury; Honey as health food; Uses in cook-

ing; Fifty recipes for use of honey.

On the last page room enough is left to print the beekeeper's name and the prices he asks for his honey. Or the address may be printed on the front cover page. At the bottom of the last page there is also room to address the booklet to the consumer, after folding it so that no envelope is needed. A gummed "Eat Honey" label or wire clasp is sufficient to hold it together for mailing.

We will furnish these pamphlets at unprecedented low prices, as follows:

Single copy as sample, free.		500 copies, postage extra	-	\$ 5.00
Less than 30 copies, postpaid, each \$.03	1000 " " "	-	9.00
30 " " "	.75	2000 " " "	-	17.00
50 copies, postage extra	.75	5000 " " "	-	40.00
100 " " "	1.25	10,000 " " "	-	75.00

For parcel-post shipment, the weight is about 6 pounds per 100 copies.

Printing name and address of producer, with brief price-list of honey on either front or back page: 500 or less, \$1.00; 1000 or more, \$1.50 per thousand.

The pamphlet contains no advertising or address of any kind and is distinctly a positive, unbiased and clear explanation of the usefulness of honey, intended for a reply to the numerous questions usually asked by the uninformed consumer. Send your orders to

American Bee Journal, Hamilton, Illinois